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First day of April 2005

A handwritten signature in dark ink, appearing to read 'J. Peisker'.

JANENE PEISKER  
TEAM LEADER EXAMINATION  
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**PROVISIONAL SPECIFICATION**

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Invention Title:

**Safety fencing**

The invention is described in the following statement:

## **SAFETY FENCING**

### **Field of the Invention**

The present invention relates to temporary safety fencing.

### **Background of the Invention**

For many years it has been considered desirable to provide fencing around building sites in order to prevent unauthorised persons and particularly children entering the site and possibly injuring themselves. In recent years such fencing has become compulsory in many jurisdictions. Typically this fencing comprises chain wire panels supported by tubular galvanised steel uprights themselves supported and located by having their bases inserted in appropriately-sized holes in concrete blocks. It is therefore concrete blocks which support the fence in place rather than having the lower extremities of the uprights buried in the ground as with a permanent fence.

Generally the concrete blocks are extremely heavy and exceed recommended guidelines for manual handling safe practices for a single person.

Also, more recently there has also been a requirement for building sites to incorporate silt fences. These silt fences are intended to prevent erosion and movement of exposed soil from the building site on to adjacent properties. Typically these silt fences comprised a relatively fine thermoplastic mesh buried in the ground at its base and supported in an upright position by attachment to stakes at discrete intervals. Typically silt fences are constructed parallel to safety fencing but spaced therefrom. A silt fence may typically stand approximately one metre inside a safety fence and must be taken down and re-erected when machinery, equipment or building materials enter or leave a site when gate access is not suitable. The space in between the safety fence and the silt fence is also difficult to maintain free of weeds. The dual requirement of a silt fence and a temporary safety fence is therefore cumbersome to construct and inconvenient to maintain during the course of building objects.

Known methods of connecting silt fences to posts generally involve staples or other fasteners which are time consuming and inflexible.

The present invention seeks to ameliorate one or more of the above-mentioned  
5 disadvantages.

### Summary of the Invention

According to one aspect of the present invention there is provided a temporary  
10 fence including a barrier assembly, the barrier assembly including: one or more posts; one or more fence panels associated with respective posts and mounted thereon; one or more anchors for anchoring the posts; the or each anchor including a first piece and a second piece and a cleft disposed between each piece when assembled.

15 Preferably a silt barrier is provided, which is operatively connectable to the barrier assembly in such an arrangement that the silt barrier when installed extends generally parallel with the fence panels.

Preferably, the cleft extends generally parallel with the fence panels when installed,  
20 such that some portions of the silt barrier are disposed at least partially within the cleft of the anchor when installed.

Preferably, the cleft is disposed generally vertically when the fence is assembled, and in preferred forms the cleft is provided generally transversely across the entire depth of  
25 the anchor, between the first piece and the second piece.

The first and second pieces may be similar in size construction and materials, however, some embodiments include differing sizing and constructions of the first and second pieces. In one embodiment the first and second pieces are both blocks, in one form  
30 constructed from concrete. The or each block is a generally rectangular prism having a

longitudinal axis which in use is disposed in generally perpendicular to a plane defined by the fence panels when installed, so as to provide stability from push over or lateral forces.

Preferably, the or each block includes apertures for receiving base portions of  
5 respective posts. Support for the post is provided by internal walls of the apertures. In preferred embodiments the apertures are through apertures which extend from an upper face of the or each block to a base face of the or each block when installed upright.

Coupling means may be provided to couple two blocks together, so that the posts  
10 may access a doubling of anchor mass if required. In one form the coupling means is a separate and distinct conventional fastening feature, such as a belt, bolts, strap, tongue and groove, key and keyway, bar and aperture, or the like. In another form the coupling means is provided by an aperture, which is fully formed when two pieces of a mounting assembly are brought together and selected faces abut one another. In one embodiment, each face  
15 incorporates a hollow in the form of half cylinder being cut along a longitudinal axis. This half cylindrical aperture is completed when the face is mated with another mounting assembly block with corresponding recesses therein. To assemble this portion of the barrier assembly, the aperture receives, in this embodiment, a cylindrical post. The post may also be RHS steel or aluminium.

20

Preferably the apertures are located along the mating wall, adjacent an end thereof. This is so as to allow the post and block to be given the greatest leverage to resist push over in one of the lateral directions.

25 In preferred embodiments the second piece of the anchor is in the form of a plate which has a longitudinal axis which when installed extends perpendicular to the fence panels to provide extra stability. The plate presents a lower height profile which reduces the likelihood of becoming a trip hazard to passers by.

30 The or each plate also includes one or more post receiving apertures, each of which support the posts in a generally upright orientation when assembled therein.

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In some embodiments the posts may be mounted on a spigot, protrusion or boss extending from an anchor piece of smaller external diameter than the internal diameter of the post.

5

In preferred embodiments the posts are arranged to form a line parallel with the fence panels when installed. In these embodiments, the apertures on the anchor are aligned parallel with the fence panels. In these embodiments, each piece of the mounting assembly is provided with a protrusion, which fits into a corresponding recess on an adjacent piece of the mounting assembly. The apertures for supporting the base of each post are provided in the protrusion.

10

Further tongue in groove or keyways or similar edge profiles may be provided in the mounting assembly to additionally lock the two pieces together.

15

In other preferred embodiments the posts are arranged to form a line on the anchor which extends perpendicular to the fence panels.

In preferred embodiments a base portion of the silt barrier is placed in a trench dug into the ground, and the trench filled in. This is to comply with best practice on the installation of silt barriers.

20

In situations where digging a trench is not possible or not economically viable, such as on concrete or rock beds, concrete or mortar may be poured to weight the base portion of the silt barrier downwards.

25

A restriction assembly may be provided to restrict the gap between the ground and a base portion of the fence panel. The assembly may include a bracket and a post, laid horizontally to engage a sandbag and the silt barrier simultaneously. The bracket may pivot to encourage downward pressure onto the silt barrier and the ground.

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It is preferred that two posts support each fence panel. However in some situations it may be preferred that two panels are mounted to each post. This may suit differing designs of panel.

5 According to another aspect of the present invention there is provided a temporary fence which includes an anchor including a first post mounting for receiving a post of a first fence and a second post mounting for receiving a post of a second fence, the post mountings being spaced apart from one another.

10 The first fence may be in the form of a barrier fence and the second fence may be in the form of a silt fence. Preferably the post mountings are arranged so that when the fences are erected they extend generally parallel to one another.

15 Preferably the second post mounting is for use with a silt fence and disposed adjacent a side of the anchor so that the fence can extend into the earth upon which the fence is erected.

20 The anchor may be in the form of a block formed from any suitable material such as concrete, timber, plastics and the like. Preferably the blocks are in the form of concrete blocks. The post mounting for the first fence may be in the form of an aperture extending into the block from an upper surface thereof.

25 In one embodiment the post mounting for the second fence may be in the form of a keyed slot in the block which is adapted to cooperate with a complimentary shaped lower portion of the post for the second fence. The keyed slot may be any suitable shape, such as for example square, rectangular, round or T-shaped, (or the like) extending into the block from the top surface thereof.

30 In another embodiment the block includes mounting lugs thereon which cooperate with lugs on the post of the second fence so that they can clip together.



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According to still another aspect of the present invention there is provided a temporary fence which includes: an anchor including a first post mounting for receiving a post of a first fence; a mounting bracket for receiving an upper portion of a second fence, the mounting bracket being connected to or integral with the post of the first fence; and  
5 attachment means for attaching the upper portion, the attachment means disposed at a distal end of the mounting bracket, the distal end being spaced sufficiently from the post so that when assembled, the upper portion is disposed generally vertically above a base portion of the second fence.

10 The first fence may be in the form of a barrier fence and the second fence may be in the form of a silt fence. Preferably the mountings are arranged so that when the fences are erected they extend generally parallel to one another. The barrier fence preferably includes a plurality of fence panels, each having a pair of posts, supporting an infill panel of wire mesh, suitable for inhibiting access to an area. The silt fence is generally in the  
15 form of a geotextile fabric, which in one embodiment has a belt sewn into the top of the fabric for strengthening or for supplementary connection to attachment means.

Preferably the mounting bracket is for use with the silt fence. The attachment means is disposed in relation to the anchor such that the fence can extend into the earth  
20 upon which the fence is erected.

The mounting bracket may be integral with or connected to the post for the first fence. The mounting bracket may be any suitable shape, however, in preferred embodiments the mounting bracket is a trapezoidal or triangular shape, tapering  
25 downwards toward the attachment means in order to provide increased moment resistance at the interface between the mounting bracket and the post for the first fence.

The anchor may be in the form of a block formed from any suitable material such as concrete, timber, plastics and the like. Preferably the blocks are in the form of concrete  
30 blocks. The post mounting for the first fence may be in the form of an aperture extending into the block from an upper surface thereof.

According to yet another aspect of the present invention there is provided a fence mounting device for mounting a fence to a fence post, the device including a main body which is mountable to the fence post and an attachment on the main body to which the fence can be releasably secured.

In one form the main body includes an end cap which is adapted to be fitted over a top end portion of the fence post. The end cap may include a cap body having a hollow section therein for receiving the top end portion of the fence post. The cap body may include a dome shaped upper portion with a skirt extending downwardly therefrom. The attachment may be in the form of a hook-like element secured to or integral with the wall of the cap body.

The fence mounting device may be used to support a silt fence which as described earlier may be of a fine mesh material. The material may include eyelets which can be placed over the hook-like elements to retain it in position, or the material may include a belt sewn into a hem in the top of the barrier, the hem slots through which the belt may be withdrawn to fasten the belt to the hook-like elements.

In another form of the invention the mounting device is suitable for use with fence posts of the type commonly referred to as star posts. Star posts generally comprise an elongated body having a plurality of radially extending flanges angularly disposed with respect to one another the flanges extending the length of the post, the flanges extending generally radially from a central axis of the post body.

In this particular form of the invention the mounting device includes a mounting body having a mounting hook receivable within a hole in one of the flanges of the star post and a recess or slot for locating the mounting device in position on the star post. The attachment is in the form of a retaining hook to which the fence can be attached.

The fence mounting device may include tensioning means for tensioning the belt so that

the silt fence maybe held more tightly against the posts, at least in the region of the belt.

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In one form, the tensioning means is a ratchet so that the main body does not need to be removed from the post in order to tension the belt. Preferably, the ratchet is in the form of one or more angled teeth which are moulded into the internal walls of the main body and projecting into the hollow section therefrom. The teeth are arranged such that when the main body is rotated in a tightening direction, the teeth are forced flat against the internal walls of the main body by the edges or the walls of the post. When the tension of the belt or fence causes the main body to rotate in a loosening direction, the teeth are forced into an open locking position, extending further into the hollow section by the walls or edges of the post, blocking rotation of the main body relative to the post.

Another embodiment of tensioning means includes a plurality of recesses within the main body hollow section which correspond to respective edge formations on the post.

In one form, eight recesses are provided at the inner walls of the hollow section. In this embodiment, every second recess mates with a respective edge of a square post when the cap is mounted on the post. Thus the cap may be rotated in increments of 45° by either rotating the cap whilst on the post, forcing the edges of the post into an adjacent recess and interlocking therewith, or lifting the cap off the post, rotating the cap and replacing the cap at a tightened position further around the posts.

Rotating the end cap draws the belt from its hem, thus tightening the upper edge of the silt fence.

A clamp may be provided, in order to clamp a larger portion of the silt barrier to the post; that is, a larger portion than merely the top edge.

In one embodiment, the clamp includes one or more arms depending from respective positions on the periphery of a head section.

In one preferred embodiment, the head section is an annular body preferably a circular annulus, having a selected depth to provide a hollow cylinder.

In a preferred embodiment, there are provided three arms spaced at regular intervals around the annulus perimeter; approximately 120°, though any number of arms or spacings is suitable for holding the silt barrier against the post wall. One arm is also suitable, as the cylinder would provide some reaction force for the arm.

The arms preferably depend parallel with a longitudinal axis of the cylinder. The radius of the cylinder is selected such that the internal walls loosely abut the edges of the post.

Preferably, the arms are adapted to receive aspects of the post walls in a corresponding manner. For example, one arm may lie flat against the flat face of the post. Another arm may have a concave or recessed cross-section in order to receive an edge or rib of a post cross-section. In preferred embodiments, there are a combination of these differing arm sections.

In one preferred embodiment, the fence mounting device includes an end cap integral with a clamp.

The clamp, in another embodiment, is in the form of separable portion which interlock when assembled. In one preferred form, the clamp has a male insert and a female receiver. Either may be normally fixed to the post, but preferably, the female is fixed to the post to receive the male insert.

Preferably, the female receiver has an opening along one face and a recess inside the opening. Preferably, the recess includes opposed side walls which taper inwardly from a rear wall opposite the opening until the side walls end at a selected distance to define the opening.

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The rear wall lies in a plane parallel to the silt barrier when installed.

The male insert corresponds in section to the female receiver, allowing some play for the silt barrier to be wedged between the insert and receiver.

A depth stop may be provided on the male insert.

### **Brief Description of the Drawings**

Some preferred embodiments of the present invention will now be described with reference to the accompanying drawings in which:

Figure 1 is a side elevation of prior art temporary safety fencing;

Figure 2 is a side elevation of prior art silt fencing;

Figure 3 is a cross section through prior art silt and temporary fencing;

Figure 4 is a transverse section through a combination silt and safety fence in accordance with a preferred embodiment of the present invention;

Figure 5 is a part side elevation of temporary safety fencing in accordance with a preferred embodiment of the present invention;

Figure 6 is a plan view of the weighted bases of fencing in accordance with a preferred embodiment of the present invention.

Figure 7 is a plan view of an anchor assembly in accordance with a second embodiment of the present invention;

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Figure 8 is a side elevation view of the fence in accordance with the second embodiment shown in Figure 7;

Figure 9 is a side elevation view of a third embodiment of the present invention;

Figures 10 and 11 are plan views and front elevation views of the embodiment shown in Figure 9;

Figures 12-14 are side elevation, plan and section views of a fourth embodiment of the present invention;

Figures 15-17 are, respectively, side elevation, plan and front elevation views of a fifth embodiment of the present invention;

Figures 18-21 are side elevation, section, plan, and front elevation views respectively of the sixth embodiment of the present invention;

Figure 22 is a detailed view of a sandbag and restriction assembly;

Figures 23 and 24 are, respectively, plan view and front elevation views of a seventh embodiment of the present invention;

Figure 25 is an isometric view of the first embodiment of the present invention;

Figure 26 is a side elevation of a further embodiment of the present invention;

Figure 27 is a side elevation of a further embodiment of the present invention, showing a detail of a preferred aperture for mounting a second post;

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Figure 28 is a side elevation view of a fence according to another embodiment of the present invention in a preferred form showing a method of attaching a second post with cooperating lugs;

5 Figure 29 is a side elevation view of a fence according to another aspect and preferred embodiment of the present invention showing a bracket for mounting a second fence;

10 Figure 30 is a perspective view of a fence according to another aspect of the present invention in a preferred form;

Figure 31 is a perspective view of a fence according to yet another aspect of the present invention in a preferred form;

15 Figure 32 shows views of a component for use in the fence shown in Figure 30; and

Figure 33 is a detail view of a component for use in a fence as shown in Figure 31.

20 Figure 34 is a tensioning means in the form of a ratchet integral with an end cap.

Figure 35 is a tensioning means having a plurality of recesses integral with an end cap.

25 Figure 36 is a clamp shown in perspective view, the clamp removably holding the silt barrier against the post.

Figure 37 is the clamp of Figure 36 shown in side elevation.

30 Figure 38 is the clamp of Figures 36 and 37 shown in combination with a separable end cap, in situ.

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Figure 39 is the clamp of Figures 36 to 38 shown in rear elevation.

Figure 40 is the clamp of Figures 36 to 39 shown in plan view.

5        Figure 41 is another embodiment of clamp showing a female receiver in perspective view affixed to a square post.

Figure 42 is a male insert which is assembled into a female receiver of Figure 41.

10       Figure 42 is the female receiver with silt barrier inserted and waiting to be clamped by the male insert, in plan view.

#### **Detailed Description of Preferred Embodiments**

It will be observed from Figure 1 that existing temporary safety fencing comprises  
15 a number of chain wire or mesh fencing panels placed in end to end collinear relationship with each other with the bases 2 of the tubular posts 3 forming the ends of each panel 1 being inserted into tubular holes (not shown) in concrete blocks 4 in order to provide support for the fencing. It will be observed that each concrete block 4 receives the bases 2 of tubular posts 3 being tubular posts defining the ends of adjacent panels. Typically the  
20 concrete blocks extend for a significant distance laterally out from each side of the fence as is best viewed in Figure 3.

Typically a silt fence is erected at one side of the temporary safety fencing, the side generally associated with a building site. This silt fence comprises a relatively fine  
25 thermoplastic mesh 6 buried in the ground at its base 7 and supported vertically by stakes 8. As is best viewed from Figure 3 the silt fence is typically spaced approximately one metre from the temporary safety fencing.

According to a preferred embodiment of the present invention depicted in Figure 4,  
30 posts 3 of adjacent fencing panels are placed in side by side rather than collinear orientation with respect to each other. In the preferred embodiment shown, a cleft 9 is

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provided, disposed across the entire depth of an intermediate portion of an anchor which includes two pieces, 12, the cleft 9 extending further between the posts 3. The two-piece construction facilitates easier carrying of the anchor as the anchor may be carried in two trips by a single person, rather than risking a back injury by carrying the whole article at one time. The two-piece construction also facilitates the provision of a cleft suitable for placement of a continuous silt barrier 10 between the pieces and posts so that silt barrier 10 may run along the length of the temporary safety fencing and be supported thereby.

It will be observed that in order for the silt barrier 10 having a base 11 buried in the ground to pass through the area where the lower extremities of posts 3 forming the ends of adjacent fencing are supported in anchors 20 in the form of 2-piece mounting assembly 21 in the form of stabilising concrete blocks 12 it is necessary that the base of each adjacent post 3 is supported in an aperture 22 in the form of a tubular hole 13 (best viewed in Figure 6) of a separate block 12. The use of two separate blocks 12 where each separate fence panel meets its adjacent fence panel together with the side-by-side rather than end to end orientation of the posts 3 ensures that a cleft between the blocks and posts 3 maybe maintained in order that a silt fence 10 may pass in an uninterrupted manner through this area.

It will be appreciated that the orientation of the concrete blocks 12 and posts 3 depicted in Figures 4, 5 and 6 permits attachment of the silt barrier 10 to the safety fence and without the necessity for separate stakes 8 to support the silt fence. The resulting composite silt barrier and temporary safety fence is far neater than in the prior art arrangement depicted in Figure 3 and furthermore is a simple matter to clear the area about the composite fence.

It will be observed that stock yard clamps 15 may be placed at positions 16 and 14 above the top of the silt barrier in order to tie adjacent posts 3 to each other thereby ensuring that the combined stability of concrete blocks 12 is available to each post 3.

It should be appreciated that in certain situations only one concrete block 12 may be necessary to stabilise each pair of adjacent posts 3 due to the fact that stock yard clamps 15 join adjacent posts. For example where a safety fence immediately abuts and runs parallel to a footpath the base of one of a pair of adjacent posts 3 may simply be provided with a horizontal laterally-extending non weighted steel plate (not shown) in order to assist in bracing the fence against tipping over the footpath; the adjacent post foot being inserted in a weighted concrete block. Unlike concrete block a horizontal laterally extending non ballasted steel plate would present less of a trip hazard on a footpath.

Referring to Figures 9-11 there is shown a fence according to another preferred embodiment of the present invention. A single post is provided at 103 and a support 130 is connected thereto. The base portions 131 and 132 of the post 103 and its support 130 respectively, are received into apertures 113 of separate blocks. The fixed connections at the top of support 130 provides stiffness and a rigid connection, albeit remote, from the anchor assembly 135.

Hooks 136 and 137 are provided, mounted on the post 103, on which to hang a fence panel 101. A retaining means 138 in the form of a clamp 139 is provided to secure the panel 101 to the post 103.

As shown in Figure 11, the silt barrier 110 in the form of a geotextile 140 alternates between one side of the fence panels and the other side, the geotextile 140 however always stays in the cleft 109 between the two piece mounting assembly and posts 103.

Referring to Figures 12-14 the anchor 220 is in the form of two concrete blocks 212. A coupling means 245 in the form of apertures 222 are provided. A second aperture 241 is provided by having a recess 242 cut into a face of the or each block. The recess 242 is a half cylinder 243, cut along a longitudinal axis. A corresponding recess 244 is cut into a corresponding face of a concrete block 212. The faces are abutted to assemble, and the post 203 is inserted into the complete aperture, coupling the blocks 212 together. In this way, the blocks 212 may restrain the post 203 from lateral forces. A flat plate 246 may be

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used in this embodiment, so that a lower height signature is presented to passers by, reducing trip hazards.

Generally, a base of the silt barrier is buried in a trench as shown at 250. When this is not possible, such as in the case of a rock floor, sandbags 251 may be provided, or concrete poured on the base portion of the silt barrier. A bracket assembly 870 (Figure 22) is provided to engage geotextile 840 and possibly sandbag 851.

Various embodiments are shown in the remaining Figures, wherein like numerals denote like parts.

One embodiment which differs so as to deserve separate comment, is shown in Figures 23 and 24.

The arrangement alleviates the "staggering" of the other embodiments. Although the silt barrier 410 must locate on alternate sides of the panels 401, the panels themselves form a single line, as the posts 403 are collinear with the panels 401. This is achieved by having each piece of the mounting assembly incorporating a projection 460 and a corresponding recess 461. Apertures 413 are provided in the projection 460. Keyways or other locking means may be provided to assist coupling of the blocks 412.

A convoluted cleft is provided at 409 in order to neatly accommodate the silt barrier 410. The silt barrier 410 attaches to the fence panels 401.

Referring to Figure 26 there is shown a schematic side elevation of a temporary fence 910 which includes an anchor 912 in the form of a concrete block 913 which includes a first post mounting 915 for a post 916 of a first fence and a second post mounting 917 for a post 918 of a second fence. The first fence is in the form of a barrier fence whereby wire mesh is mounted to the posts to inhibit access to a site. The second fence is in the form of a silt fence which includes a thermoplastic mesh 920 secured to post 918. As shown the lower side portion of the mesh 920 is buried in the ground. In



alternative embodiments, the lower side portion 920 is weighted with sand bags or concrete blocks, or weighted with loose gravel.

5 The first post mounting 915 is in the form of an aperture 921 extending into the anchor block from the top surface thereof. The cross-section dimension of the aperture 921 is complimentary to the cross sectional dimension of the post 916. The second post mounting 917 is in the form of a T-shaped slot 922 which extends into the anchor block from the top surface thereof. The lower end portion of post 918 is complimentary in shape so as to be receivable within the slot. The post 918 further includes an attachment 924 to  
10 which the mesh 920 can be fitted.

Figure 27 shows a similar arrangement to that shown in Figure 26, however, the T-shaped slot 922 has been changed to a round aperture 1022.

15 Referring to Figure 28 which is a side elevation of a temporary fence according to a further embodiment like reference numerals have been used to identify like parts as used in Figure 26. In this particular embodiment the post 918 for the silt fence includes a clip arrangement by which it can be releasably clipped to the anchor block 912. The clip arrangement includes a leg 930 at the base of the post 918 which can be received within a  
20 recess 931 in the anchor block. The clip arrangement further includes a clipping arm 932 which in a mounted position is fitted behind a shoulder 933 on the upper side of the anchor block to retain the post in position.

Figures 30 and 31 illustrate two embodiments of silt fence using fence mounting  
25 devices according to another aspect of the present invention. Referring to Figures 30 and 31 there is shown a silt fence 950 which includes a plurality of fence posts 951 to which a mesh barrier material 952 is releasably mounted. In Figure 30 the fence posts are in the form of star posts 960 and in Figure 31 the posts are in the form of stakes 955.

30 The fence mounting device 965 for use in the embodiment shown in Figure 30 is best illustrated in Figure 32. Figure 32 (a) illustrates a typical star post 960 which



comprises an elongated body 961 having three radially extending flanges 962 extending from the central axis of the body 961. One or more apertures 963 are formed in one or more of the flanges.

5       The fence mounting device is illustrated in Figures 32(b), 32(c) and 32(d) where Figure 32(b) is a plan view, Figure 32(c) is a front elevation and Figure 32(d) is a side elevation of the device mounted to a star post 960. The device 965 includes a device body 966 including a slot or recess 967 which receives an edge portion of one of the flanges 962 therein. The device further includes a hook element 969 adapted to be passed through an  
10   aperture 963 in the star post. An attachment 968 enables the mesh 952 to be mounted to the device.

      In the embodiment shown in Figures 31 and 33 the mounting device is in the form of an end cap 970 including a hollow body 971 receivable over the top of the post and an  
15   attachment 972 to which the mesh can be mounted.

      Advantageously, preferred embodiments such as for example Figures 4 – 25 of the present invention are easier to install as the lifting required for each anchor is reduced. That is, a single man may carry the fence to site and install it single-handedly as per safe  
20   work practices. This is facilitated by the or each anchor being in two pieces, each of which may be carried by one person. Back injuries are one of the most common injuries in the construction industry.

      Also, preferred embodiments of the present invention provide advantages of  
25   stronger sediment control and easier and faster installation of sediment control fences than known devices, as well as the rounded cap providing a safety aspect from cuts, grazes, abrasions, and reducing injury in the event of a fall thereagainst.

      Referring to Figure 34, a tensioning means 75 is shown integral with an end cap 70.  
30   The tensioning means 75 is in the form of a ratchet 76 having a plurality of angled teeth

77. The attachment 72 in the form of a cleat 73 acts as a hook to receive a belt 74 (Fig. 38).

5 In operation, the end cap 70 is turned in a tensioning direction, and the teeth 77 are forced flat against the internal periphery of the hollow body 71 by the edges of the square post 55. This allows tightening with relative ease, and the belt 74 is drawn out of its hem to tighten the top edge of the silt barrier 6.

10 When the belt 74 draws the end cap 70 in a loosening direction, the teeth 77 are forced by the edges of the post 55 into an open or locking position, pointing into the centre void of the hollow body.

Figure 35 shows a tensioning device 175 integral with an end cap 170. The tensioning device 175 is in the form of a plurality of recesses 178 which mate with edges  
15 of the post 55 when assembled. In the embodiment shown, eight recesses 178 are indicated, which allows locking rotation in 45° increments. Of course, in the embodiment shown, only every second recess engages a respective edge of a square post 55. Tightening may be effected by turning and thus forcing the recesses open, similar to a ratchet, or by lifting the cap off and replacing the cap at a different angular position.

20

Figures 35 to 43 and similar arrangements may be used on any type of post, peg, pipe or fence picket (e.g. metal "star" picket) to provide three benefits:

- a safety cap
- silt fence support via lug or clip
- 25 - tension adjustment by turning cap

They may vary in structure and appearance but can achieve the above features.

Referring now to Figures 36 to 40, there are shown clamps 79 including a head  
30 section 80 and a plurality of clamping arms 81 depending therefrom. The clamp 79 when

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installed provides a clamp for clamping the silt barrier 6 against the post 55 at an overlapping region of the post 55 and silt barrier 6.

The clamping arms 81 depend parallel to a longitudinal axis of a cylindrical annulus 82 which is one embodiment of the head section 80. The arms 81 are spaced around the annulus at angles of  $120^\circ$ .

Rear arm 82 when installed provides a reaction force for fore arms 83. Rear arm 82 is disposed flat against a force of the post 55 and has a corresponding flat face on its cross-section.

Fore arms 83 are profiled to correspond with a respective edge of the post 55, and includes a concave recess 84. The corresponding profile provides some tensioning to the silt barrier 6 when installed.

The cap 70 and clamp may be integral.

Referring to Figures 41 to 43, a second embodiment of clamp is shown. A two piece clamp is shown, the clamp having a female receiver 84 and a male insert 85. The silt barrier 6 is held against the internal periphery of the receiver 84 by the insert 85 when assembled in order to provide some tensioning when assembled.

A depth stop 86 is provided by a cross member 87. The receiving member 85 has tapering walls and an open edge, so that the silt barrier may be easily loaded and securely retained in the clamp 79:

Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", and variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

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Finally, it is to be understood that the inventive concept in any of its aspects can be incorporated in many different constructions so that the generality of the preceding description is not to be superseded by the particularity of the attached drawings. Various alterations, modifications and/or additions may be incorporated into the various constructions and arrangements of parts without departing from the spirit or ambit of the invention.

DATED this 29th day of October, 2004.

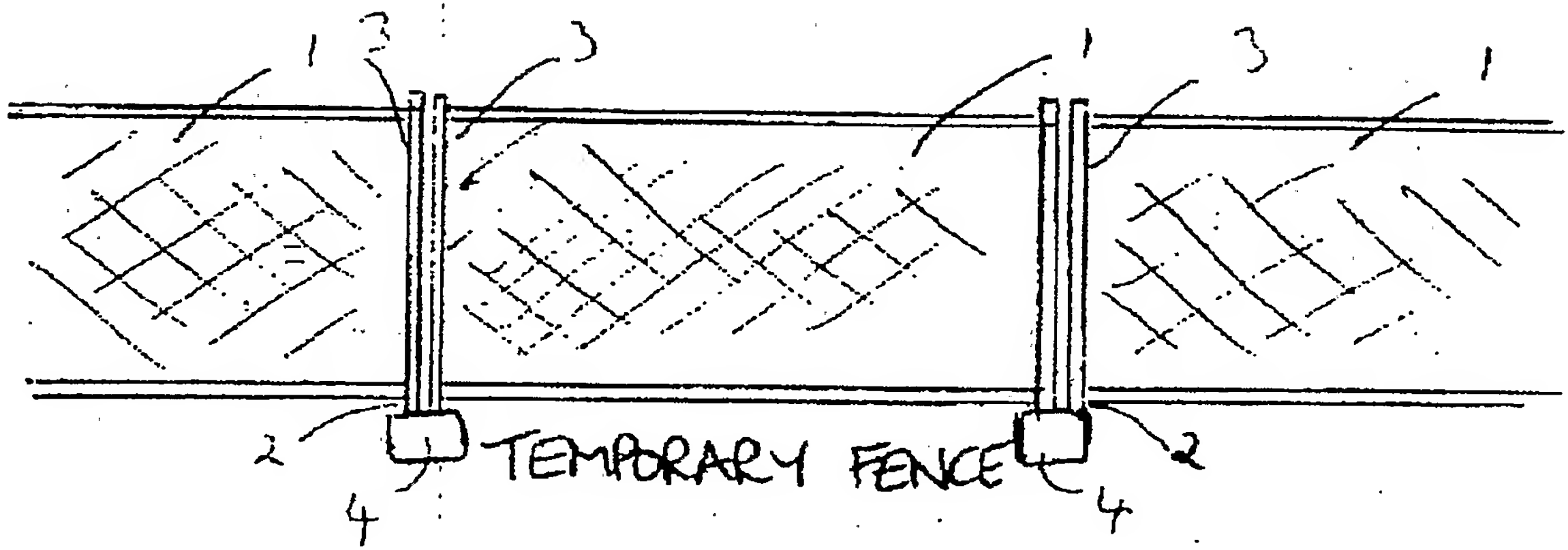
10

**Peter John McNEILL**

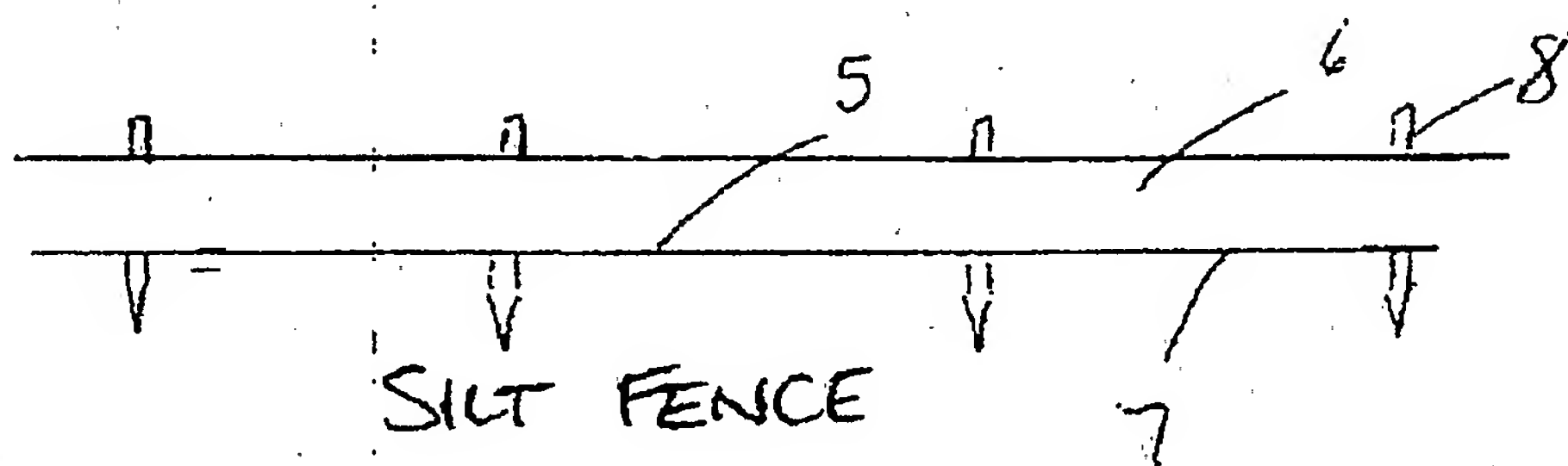
By His Patent Attorneys

**DAVIES COLLISON CAVE**

2004906267 29 Oct 2004

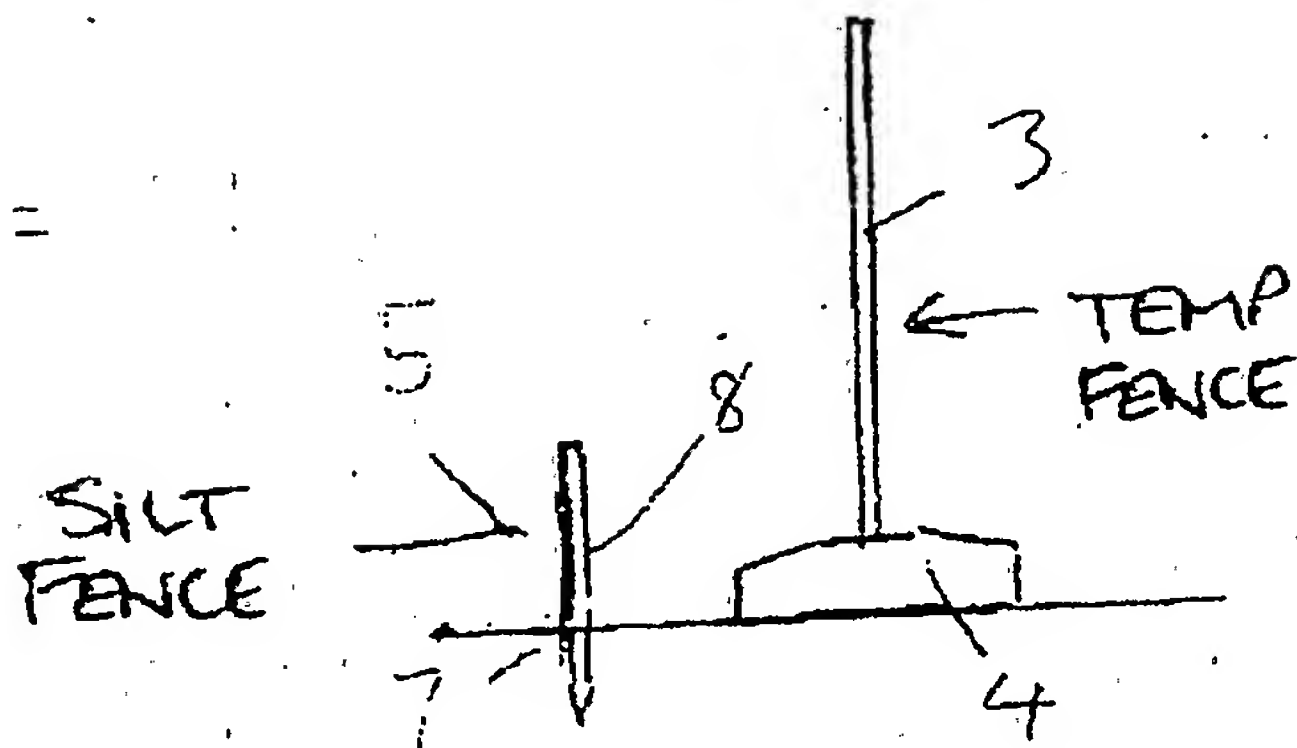


**FIG. 1**

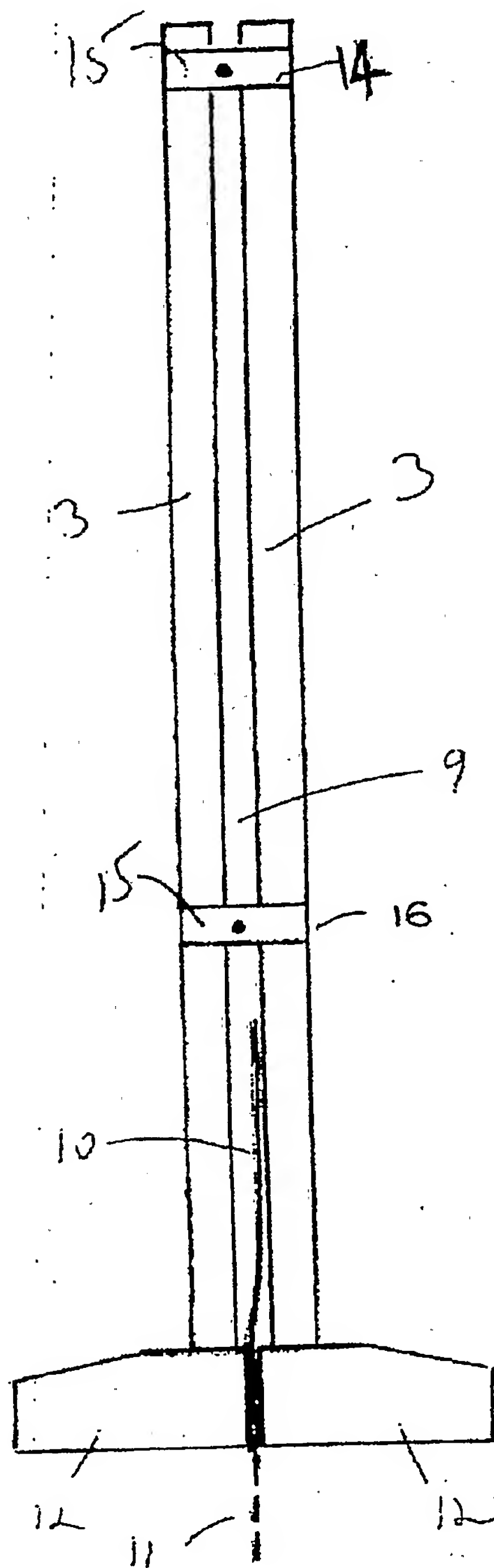


**FIG. 2**

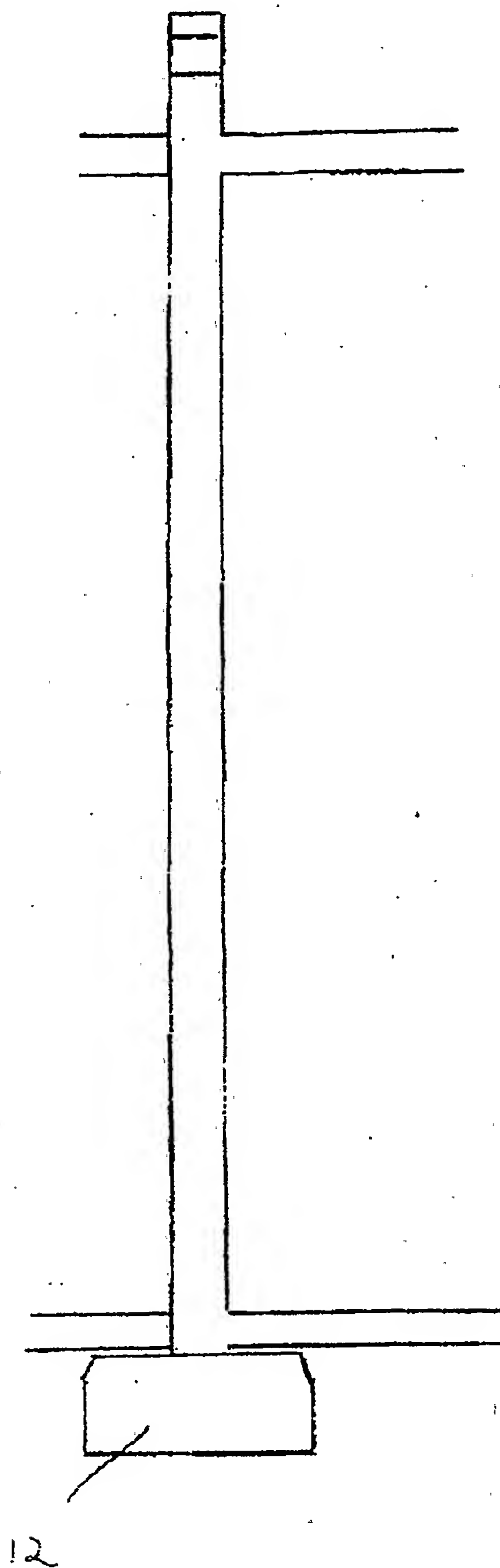




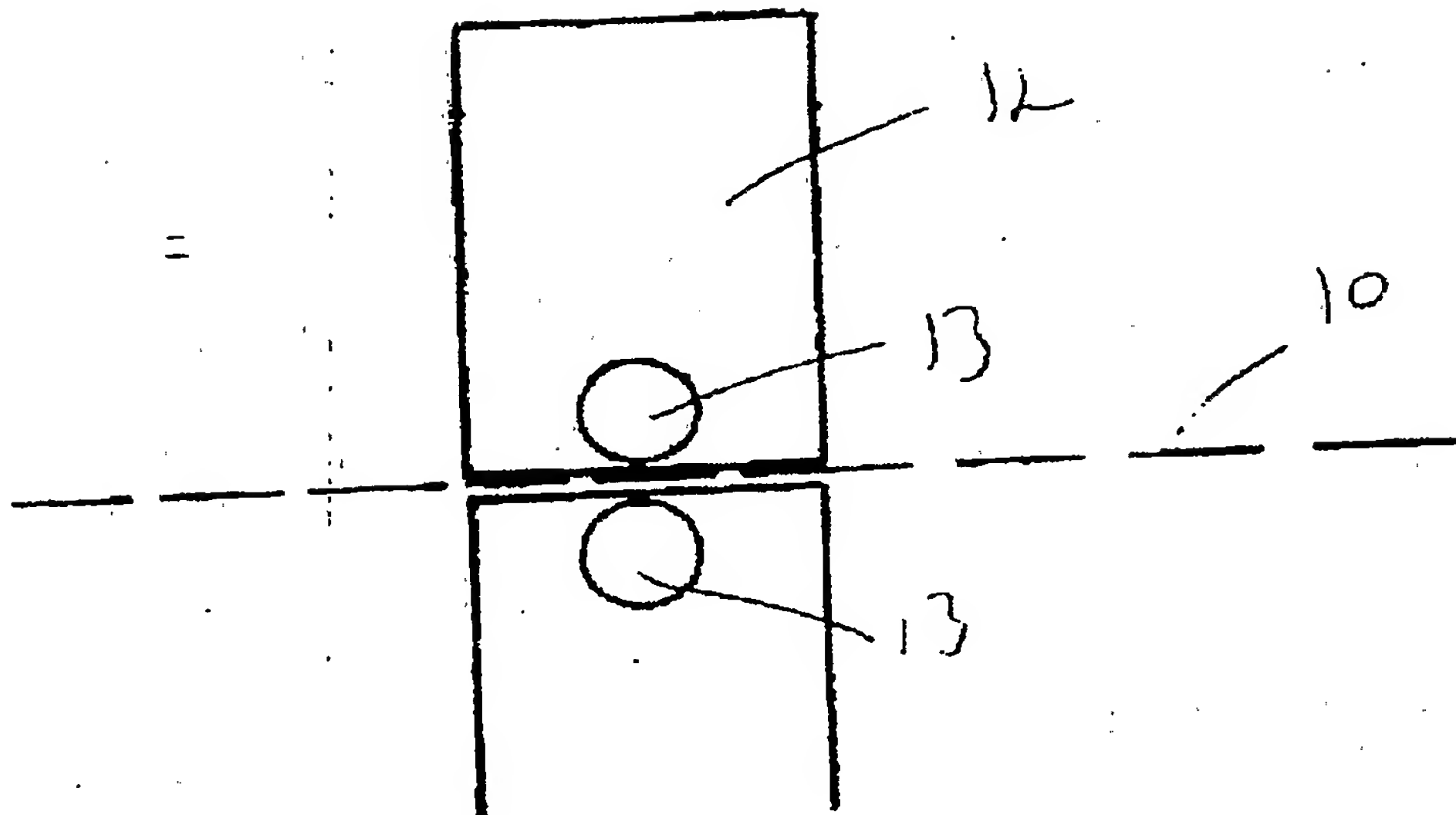
**FIG. 3**



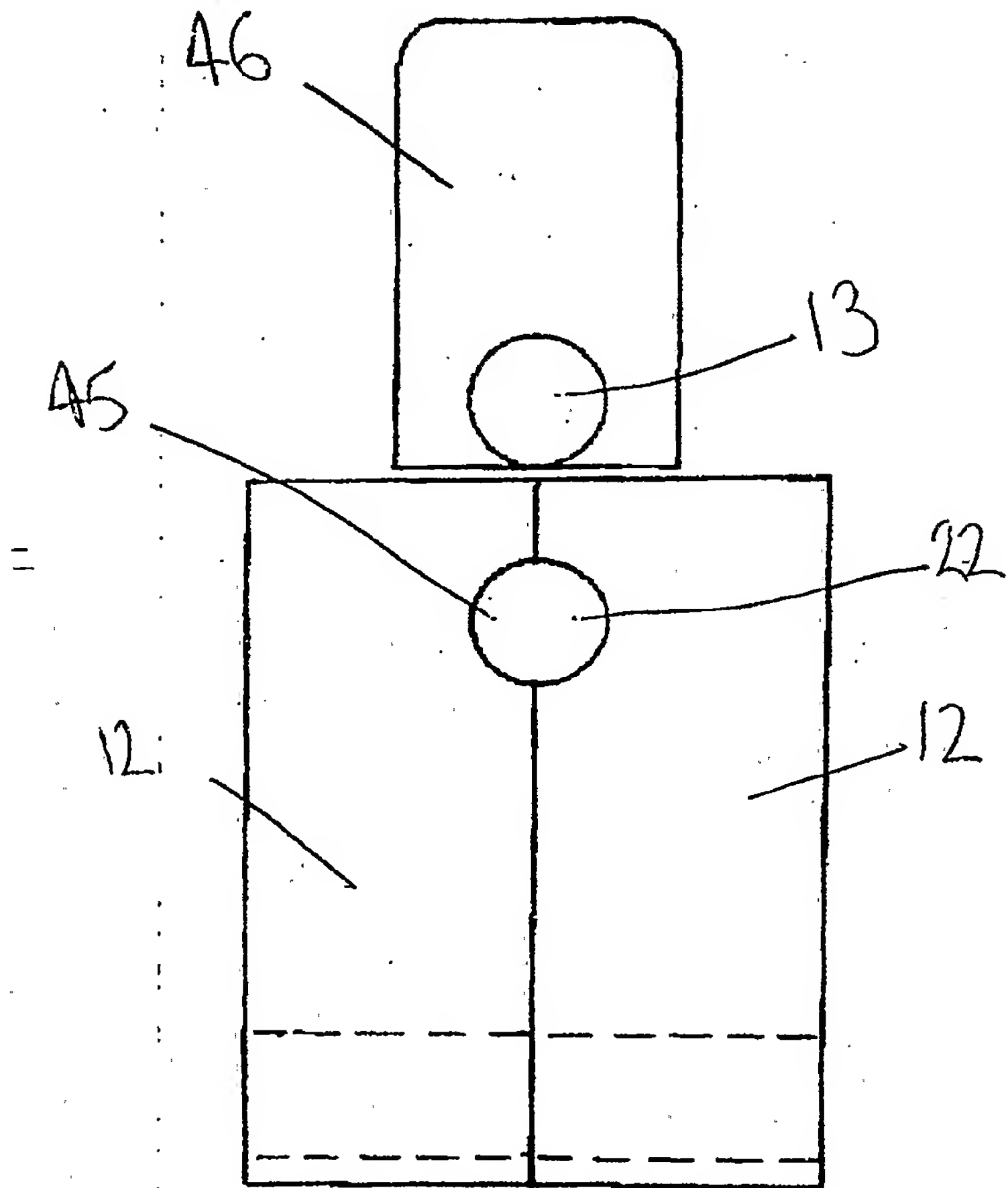
**FIG. 4**



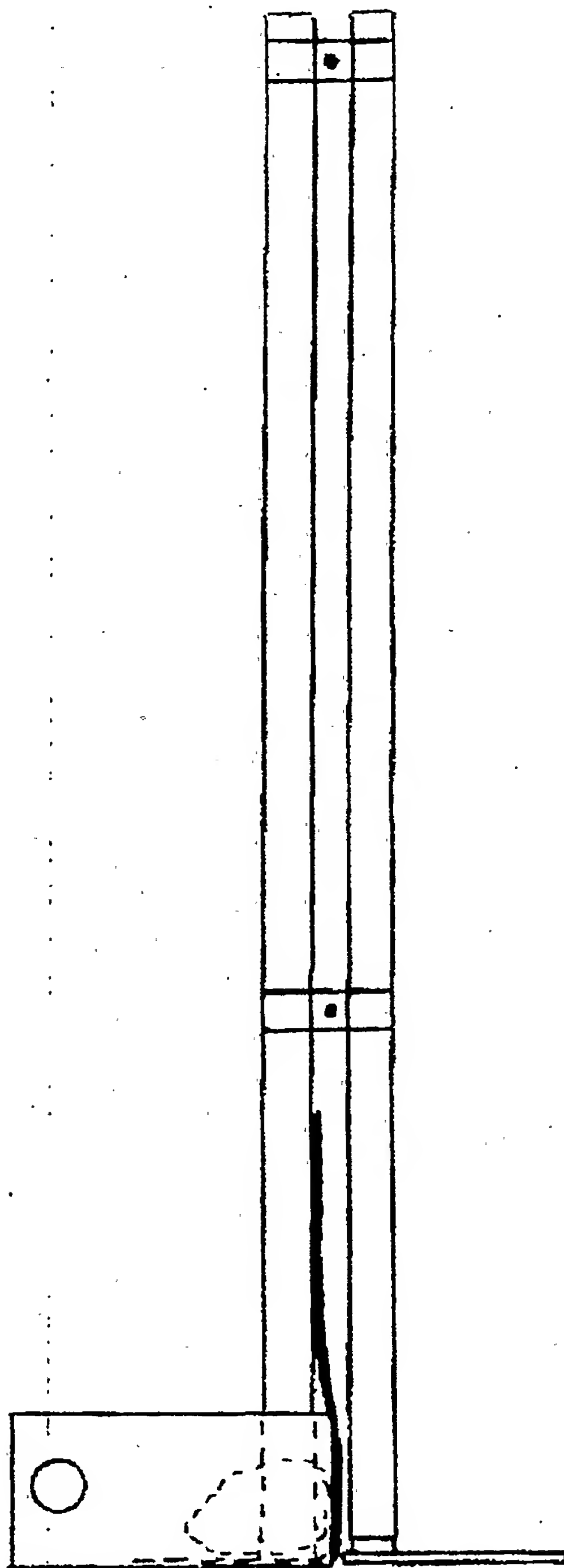
**FIG. 5**



**FIG. 6**

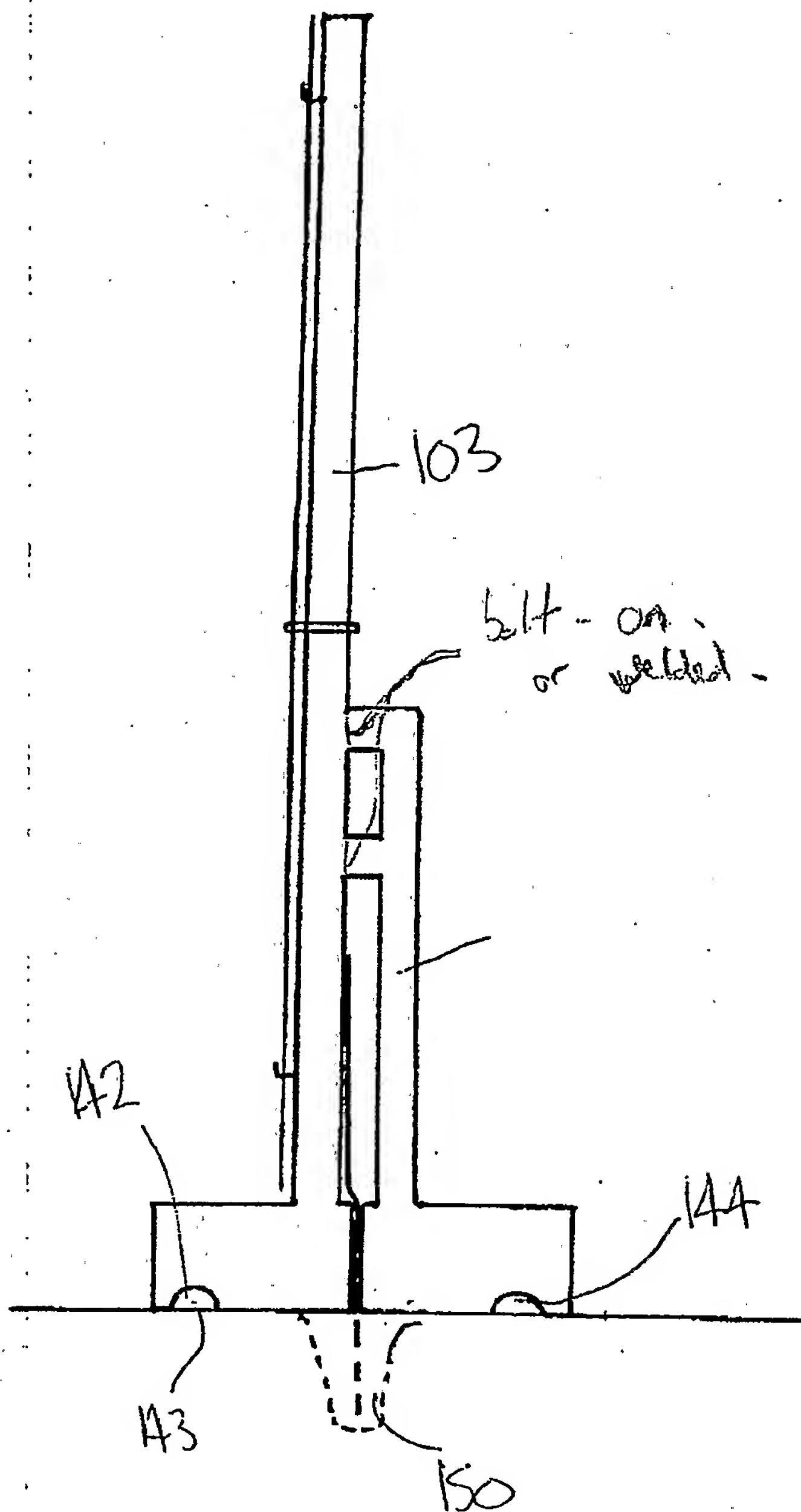


**FIG. 7**

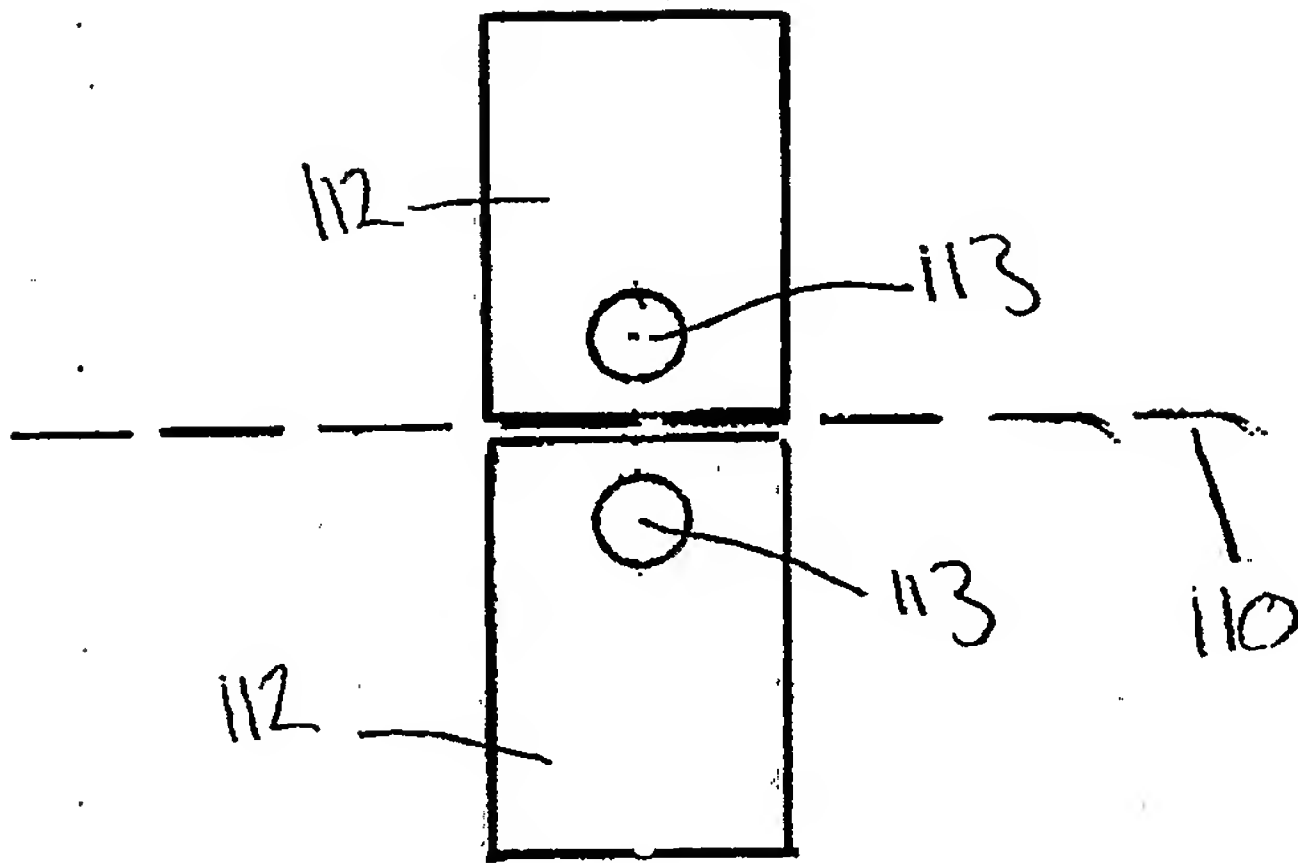


**FIG. 8**

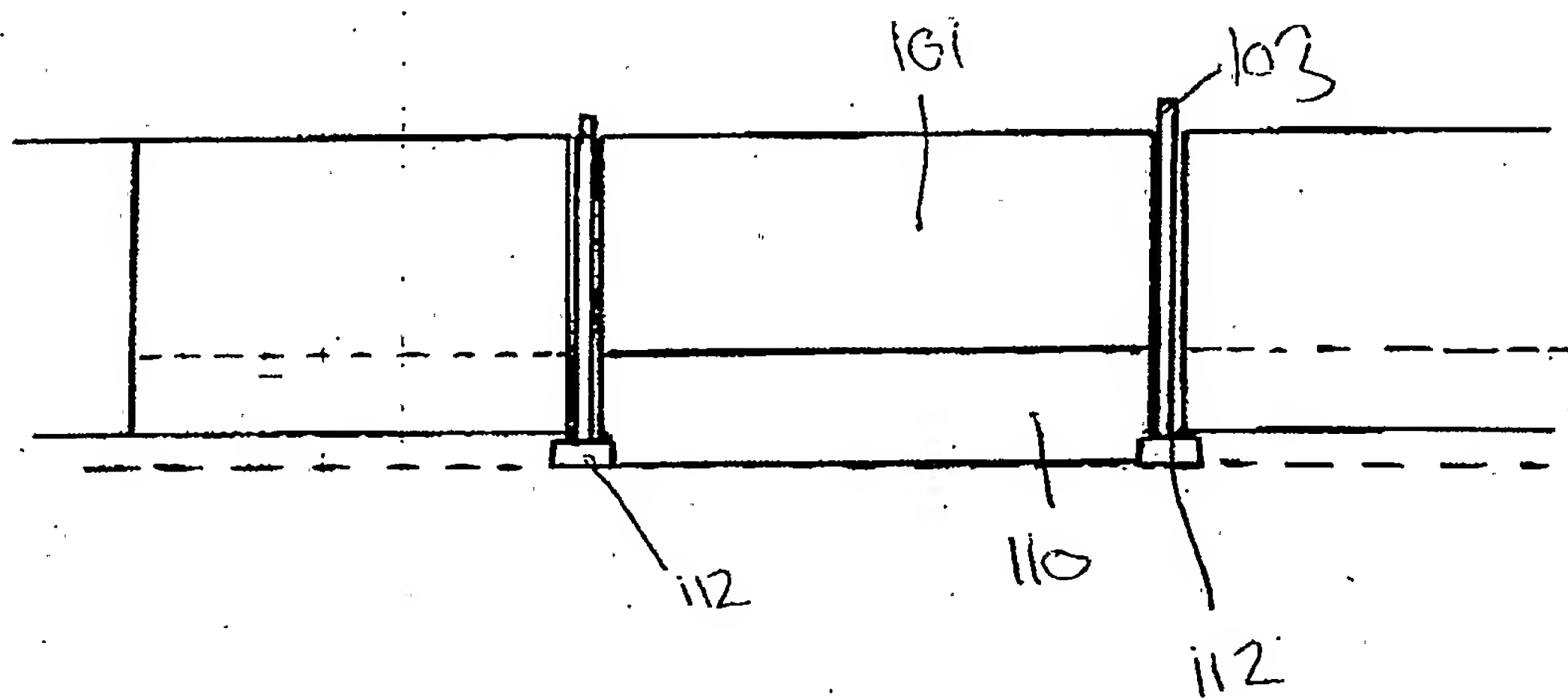




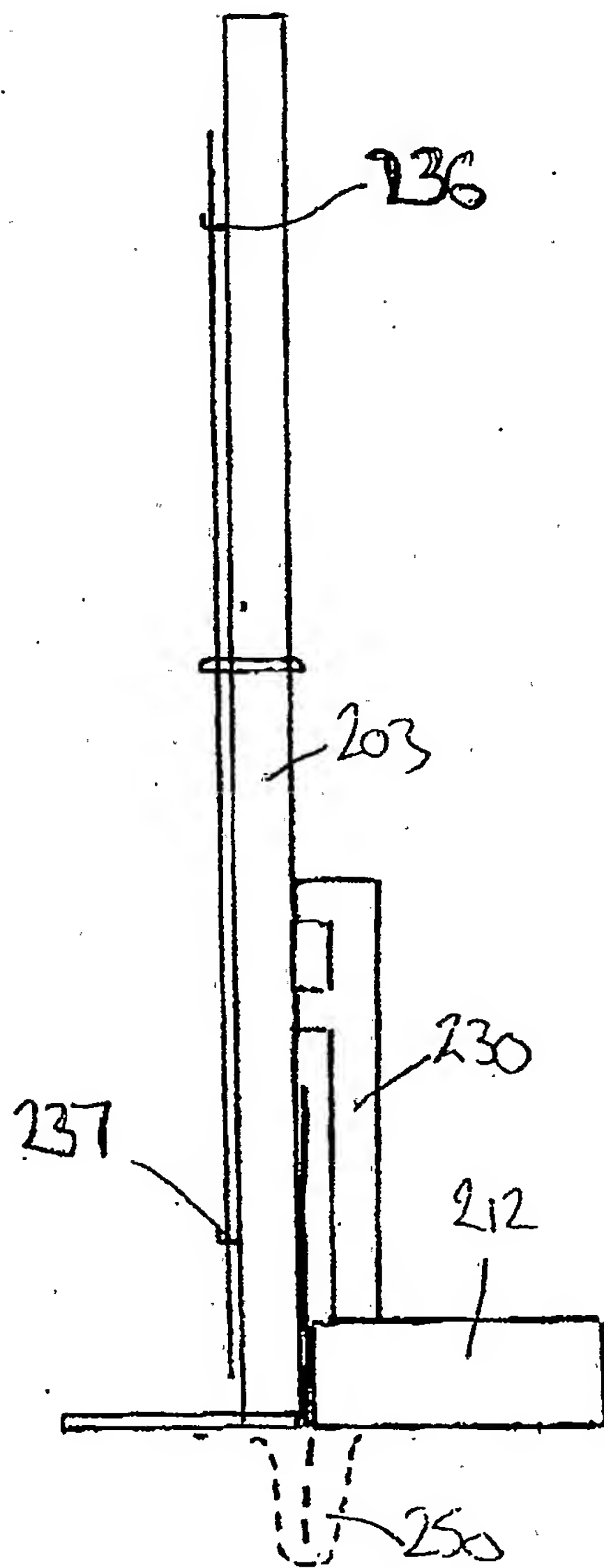
**FIG. 9**



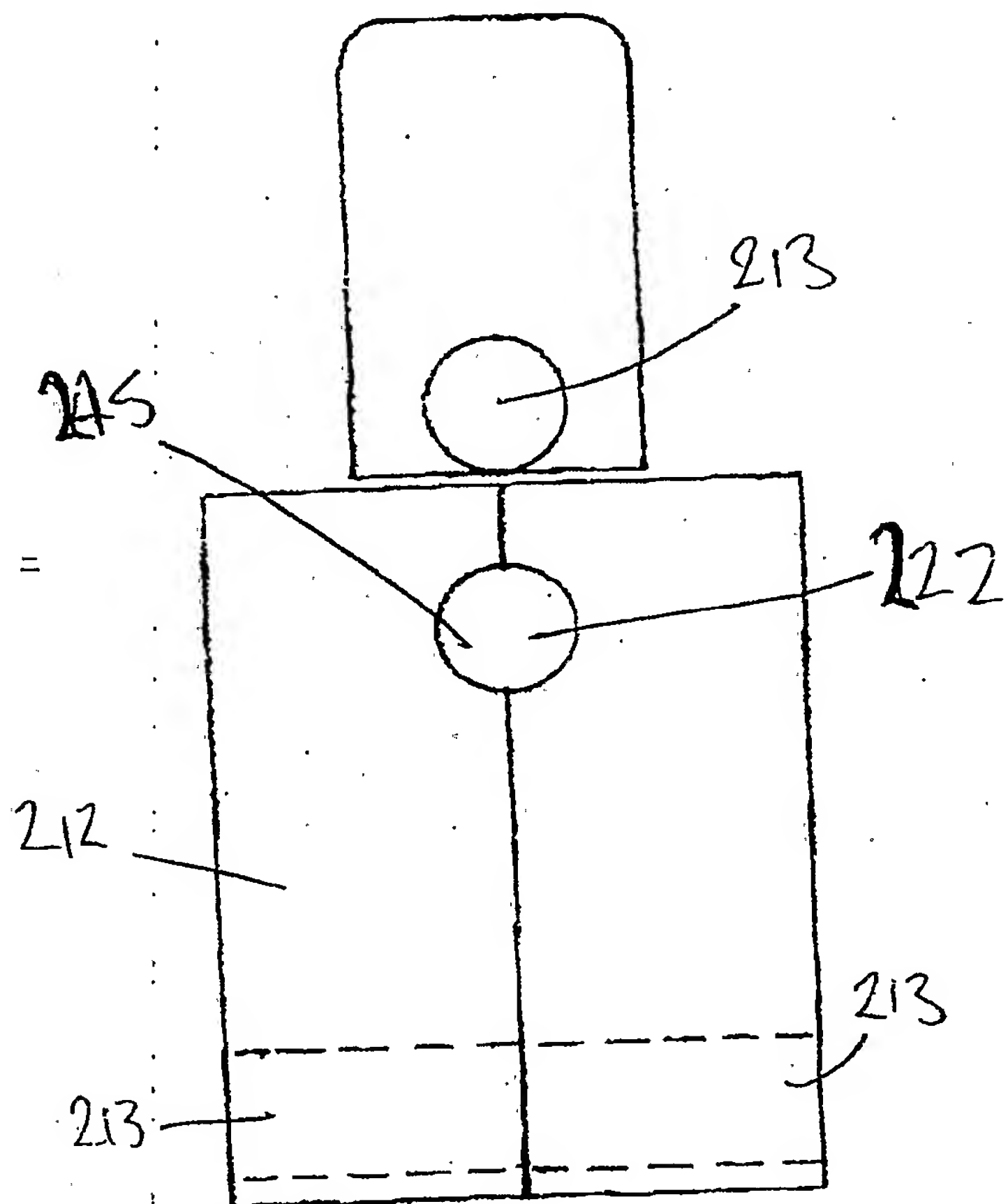
**FIG. 10**



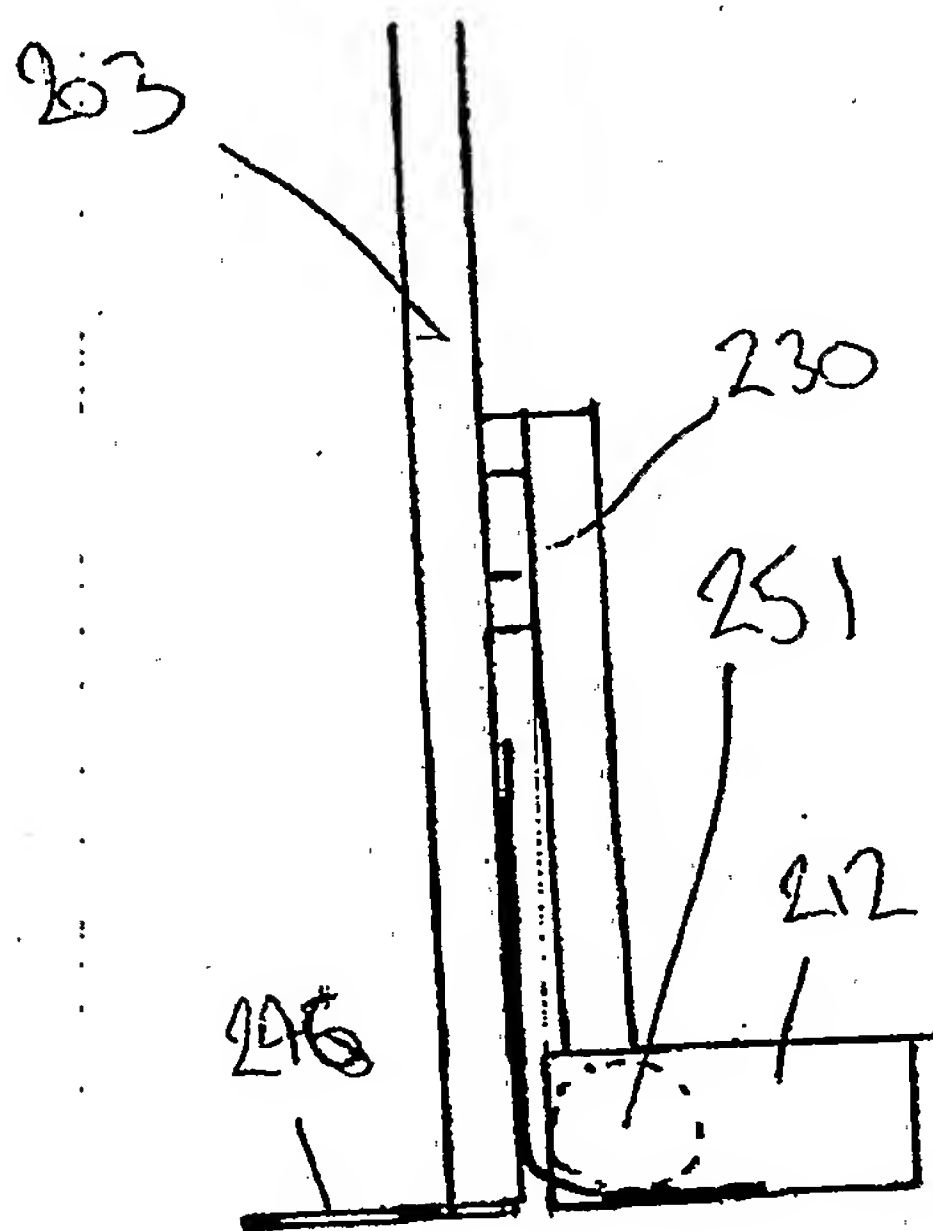
**FIG. 11**



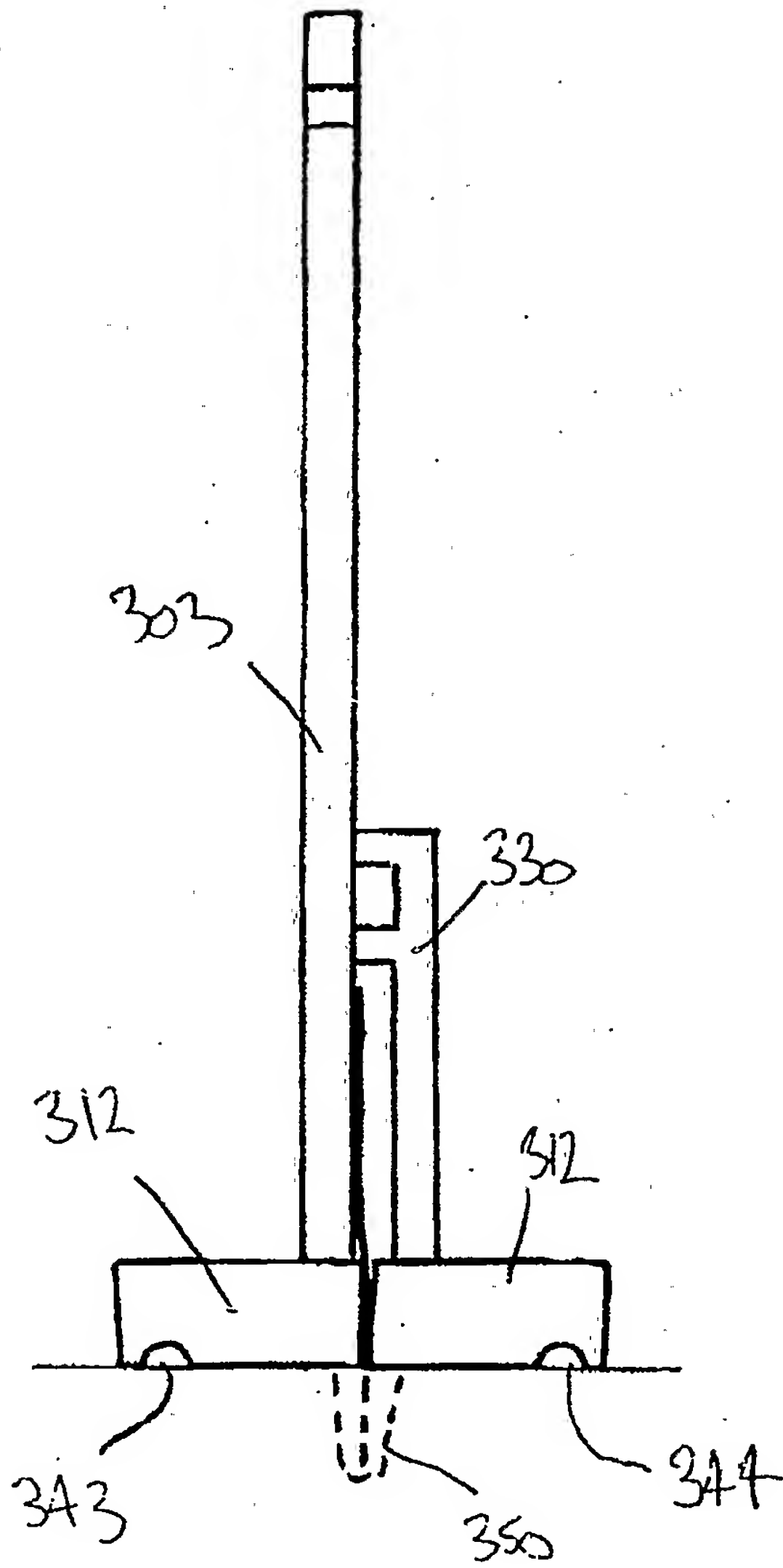
**FIG. 12**



**FIG. 13**

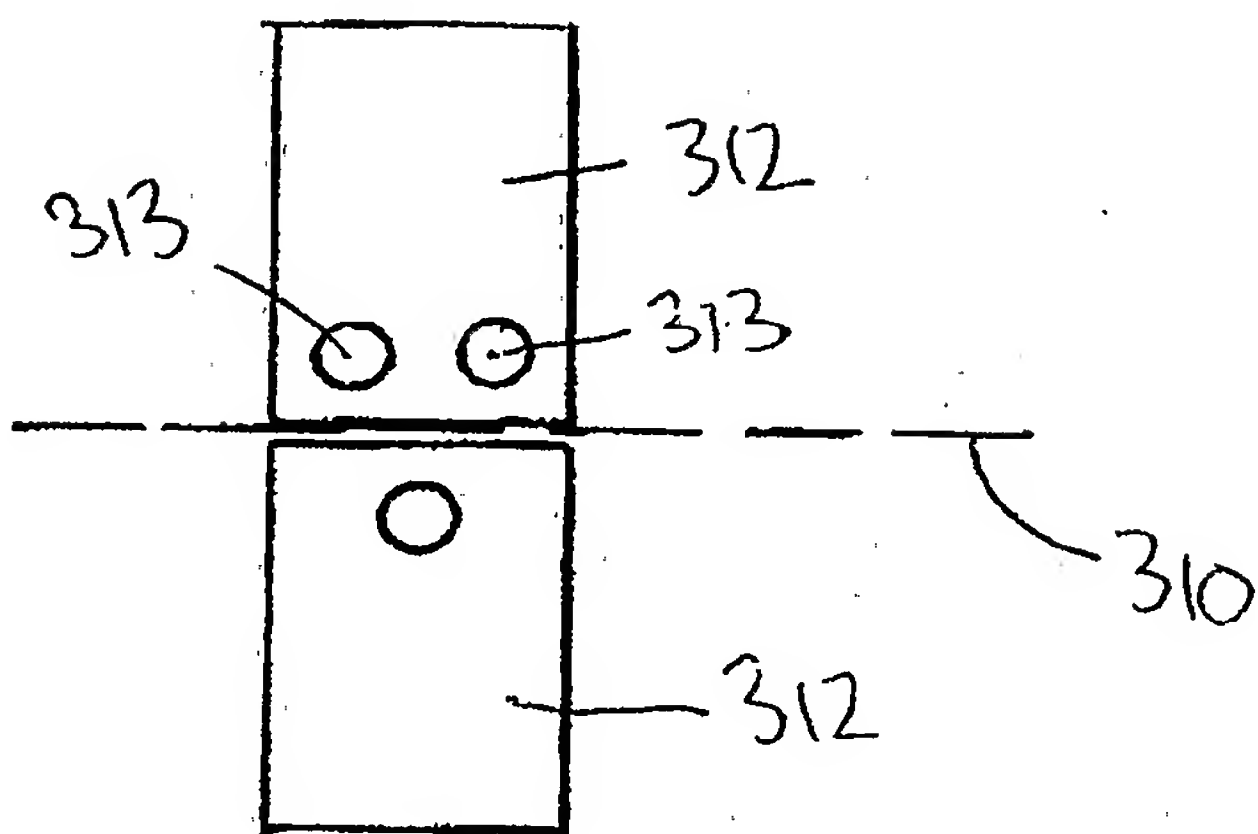


**FIG. 14**

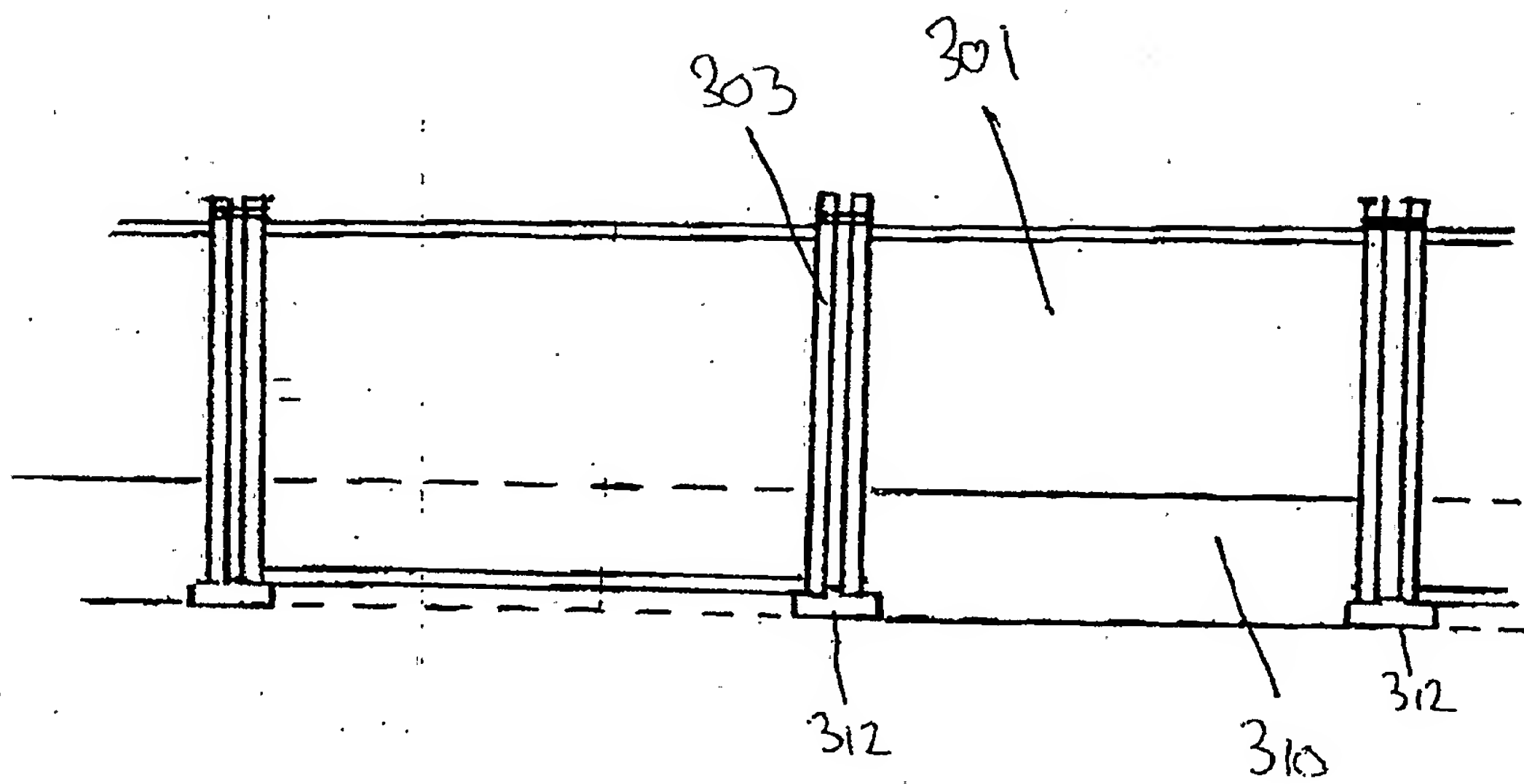


**FIG. 15**

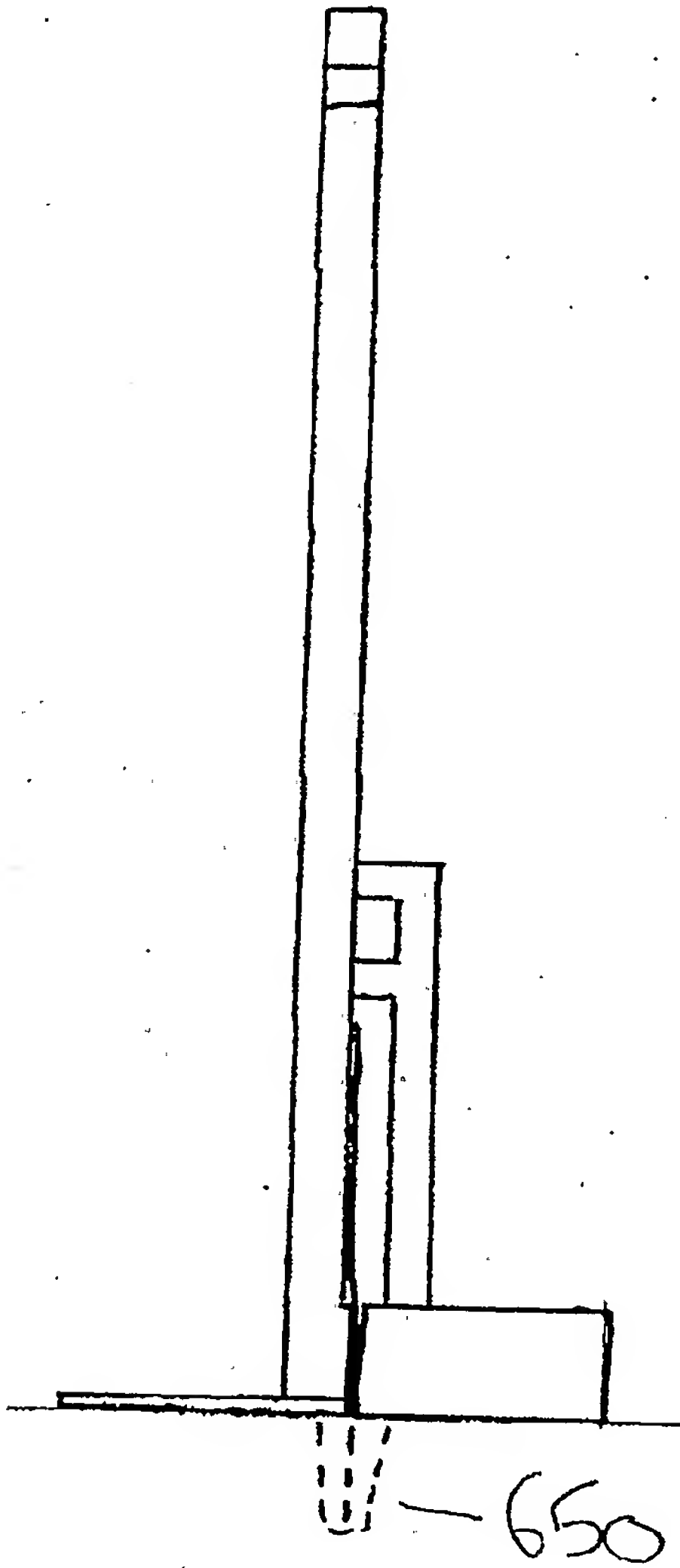




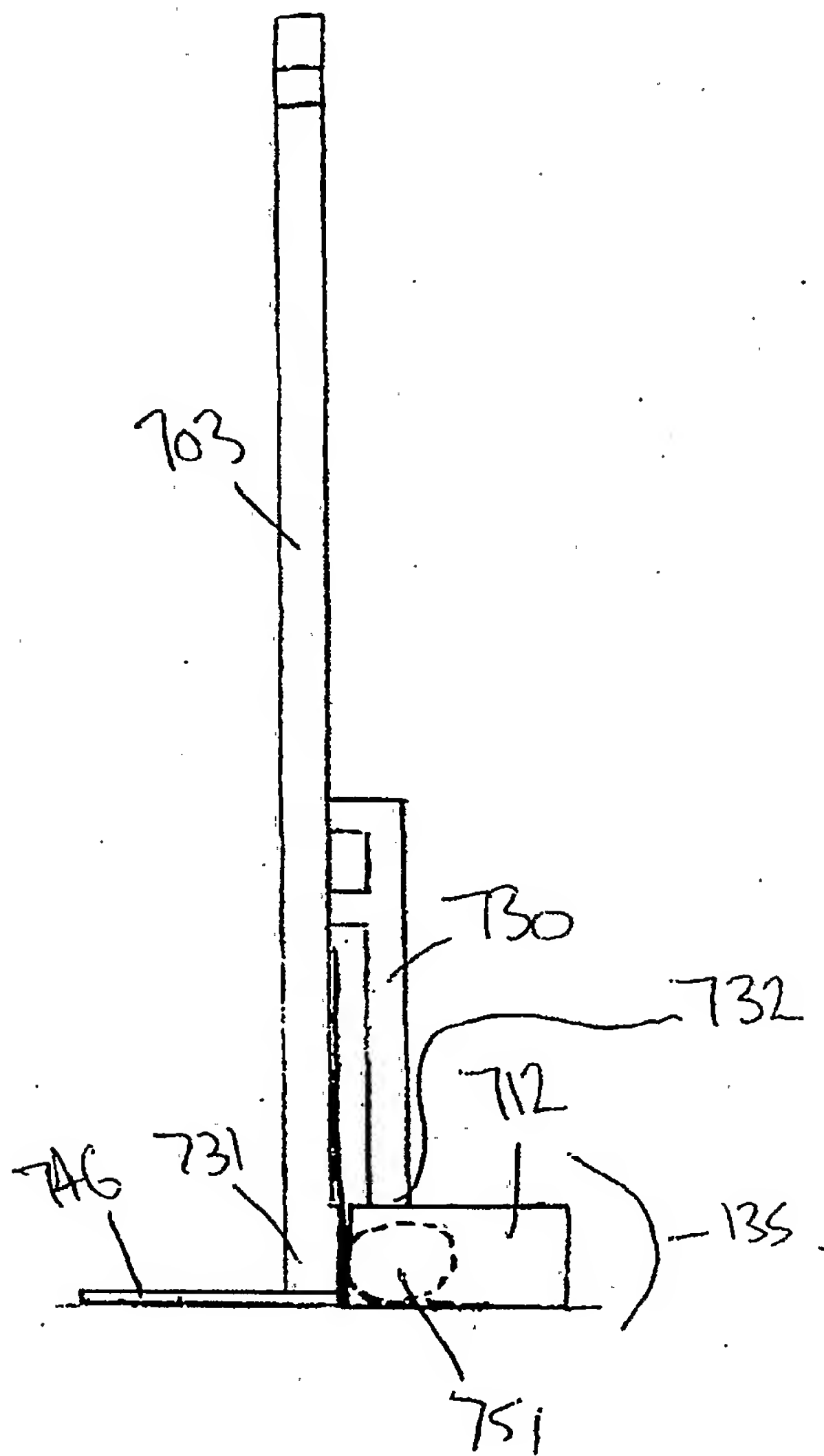
**FIG. 16**



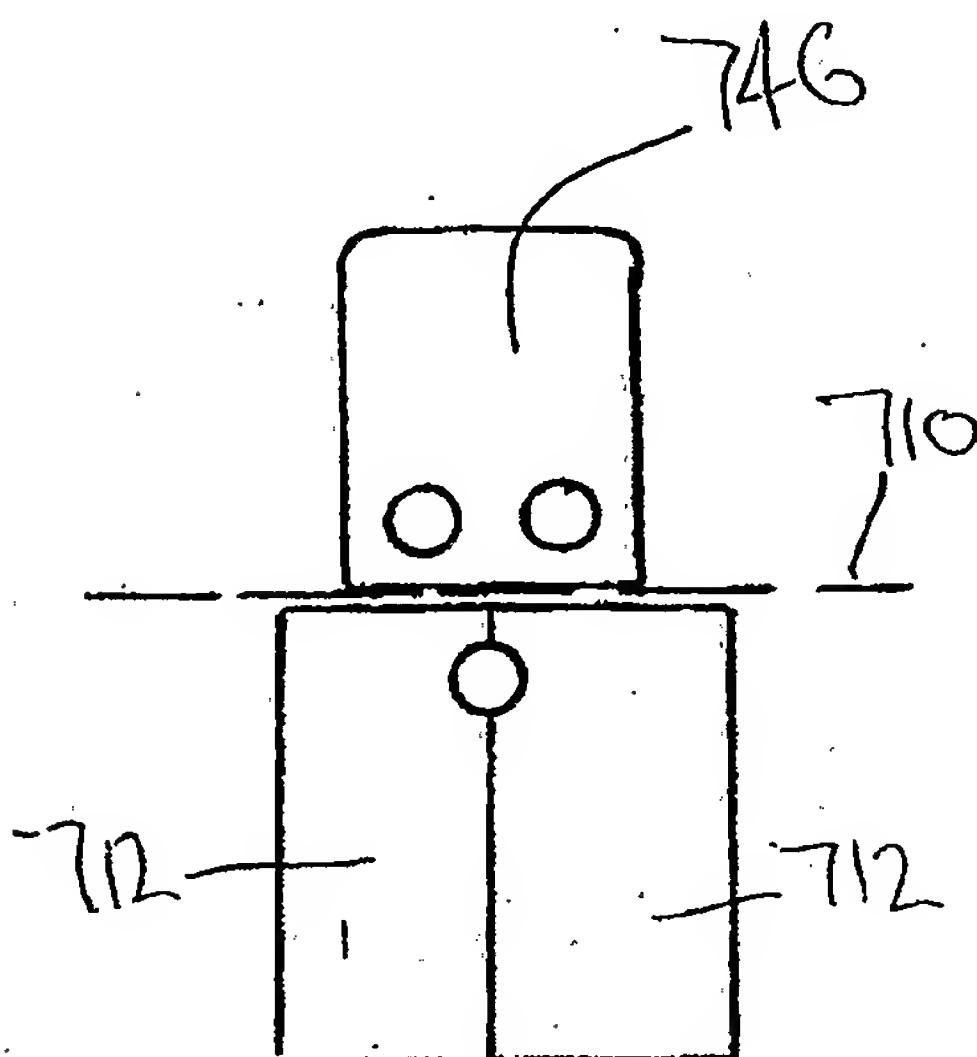
**FIG. 17**



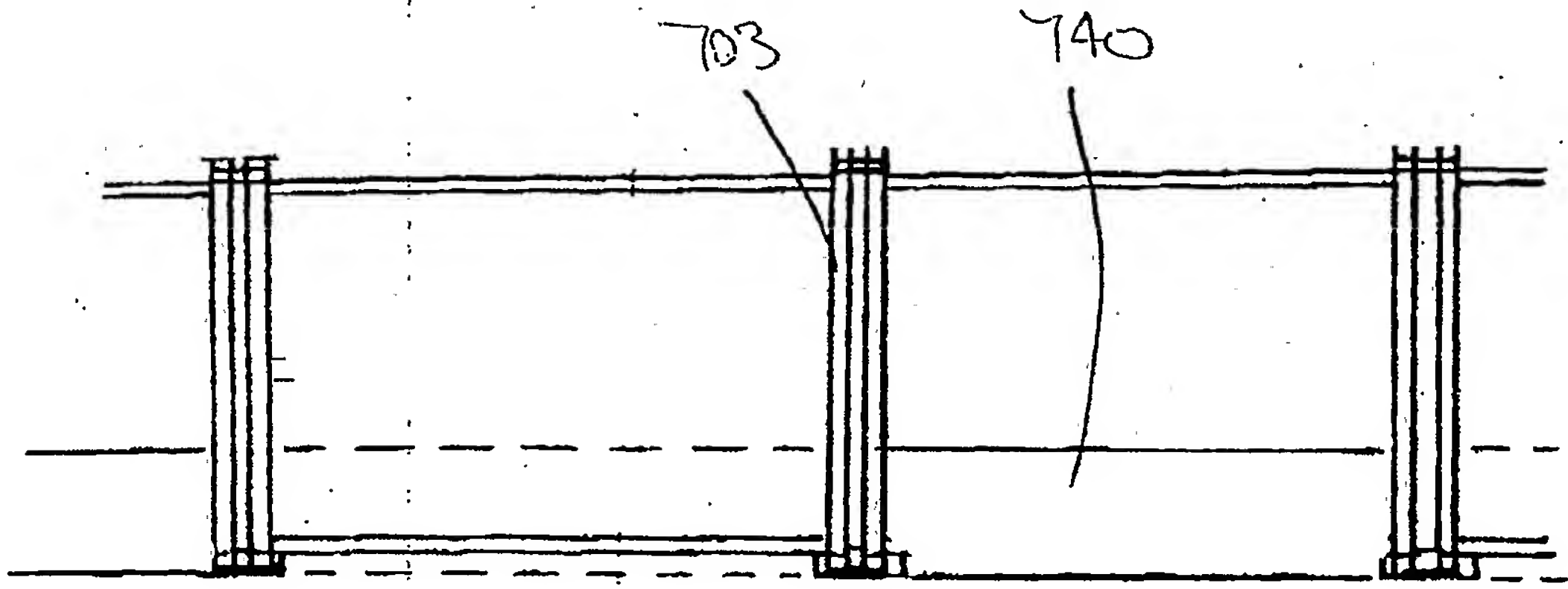
**FIG. 18**



**FIG. 19**

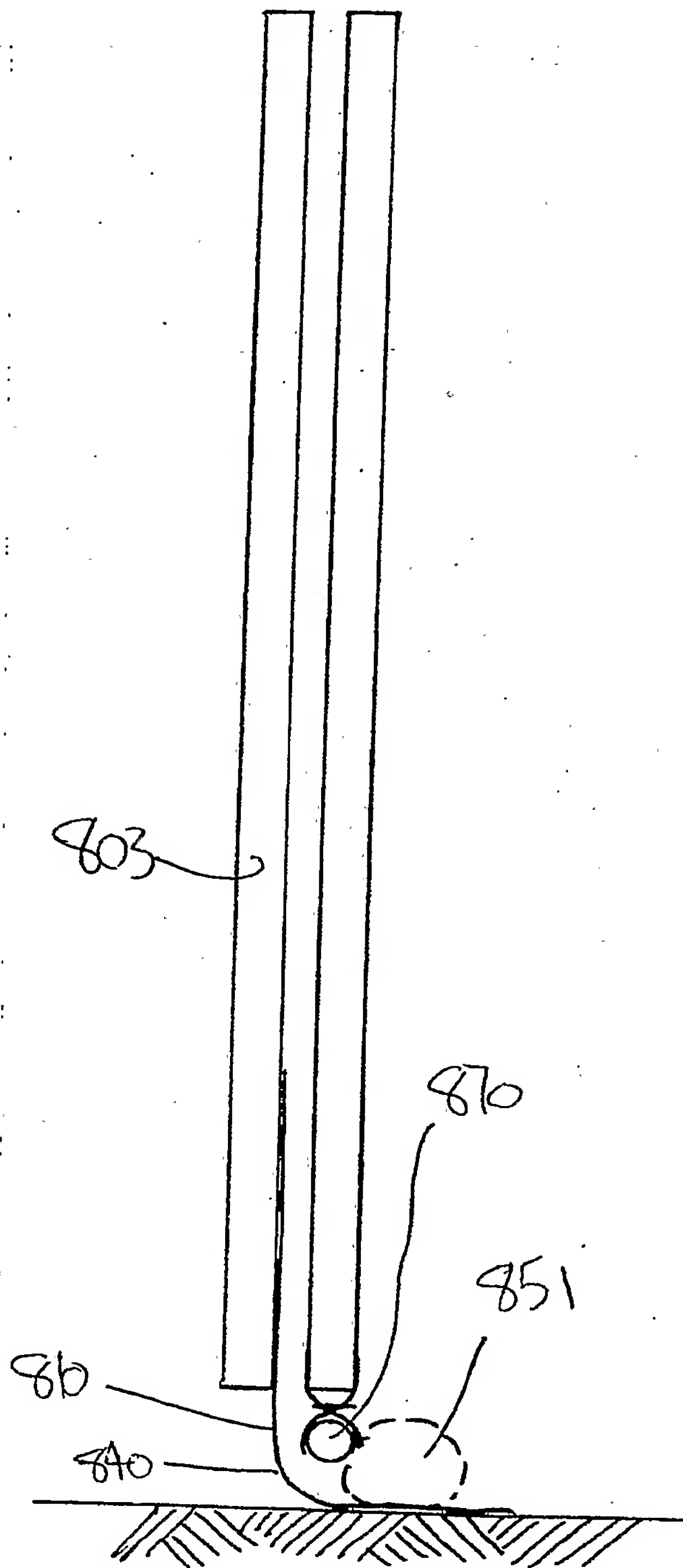


**FIG. 20**

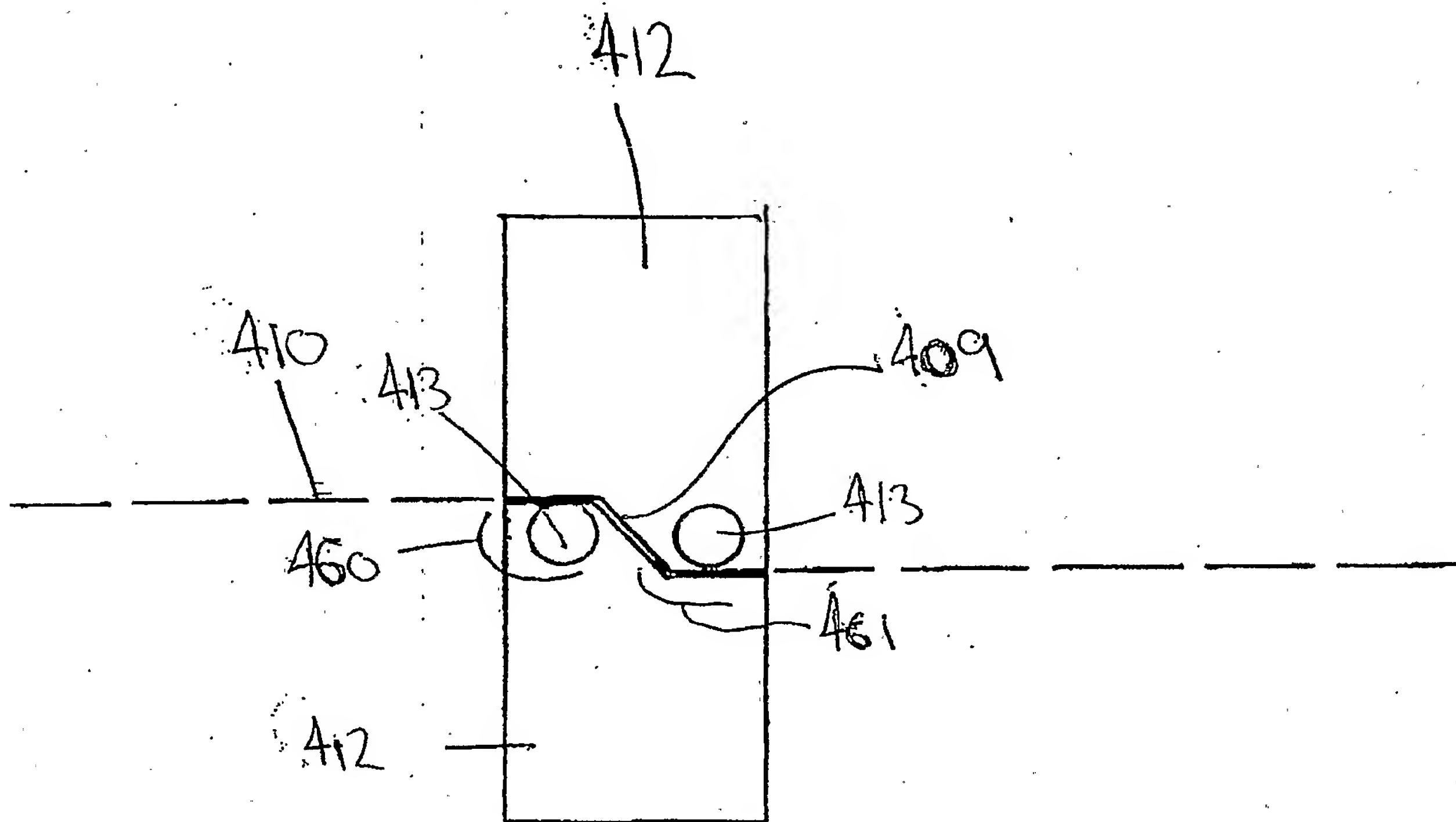


**FIG. 21**

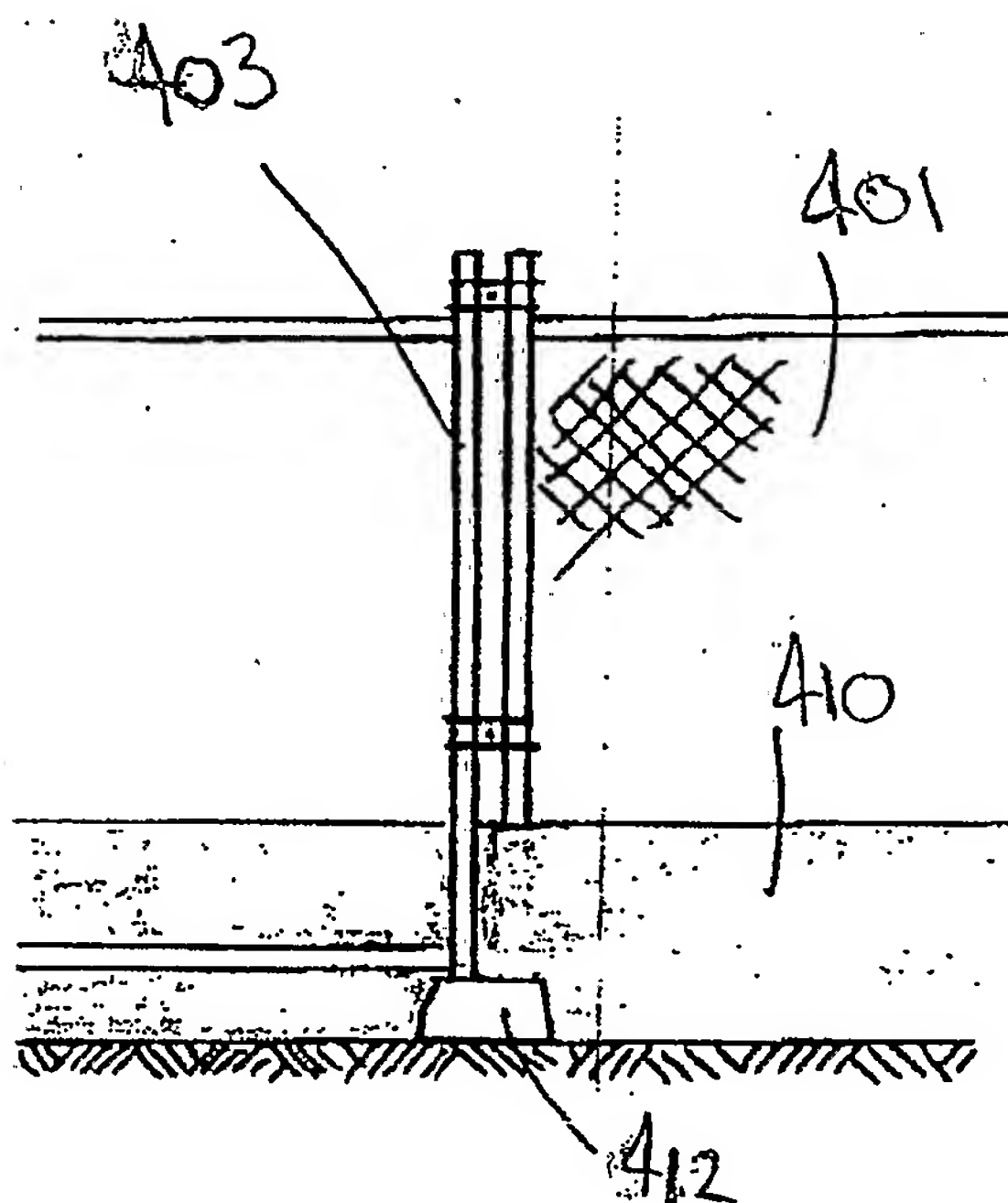




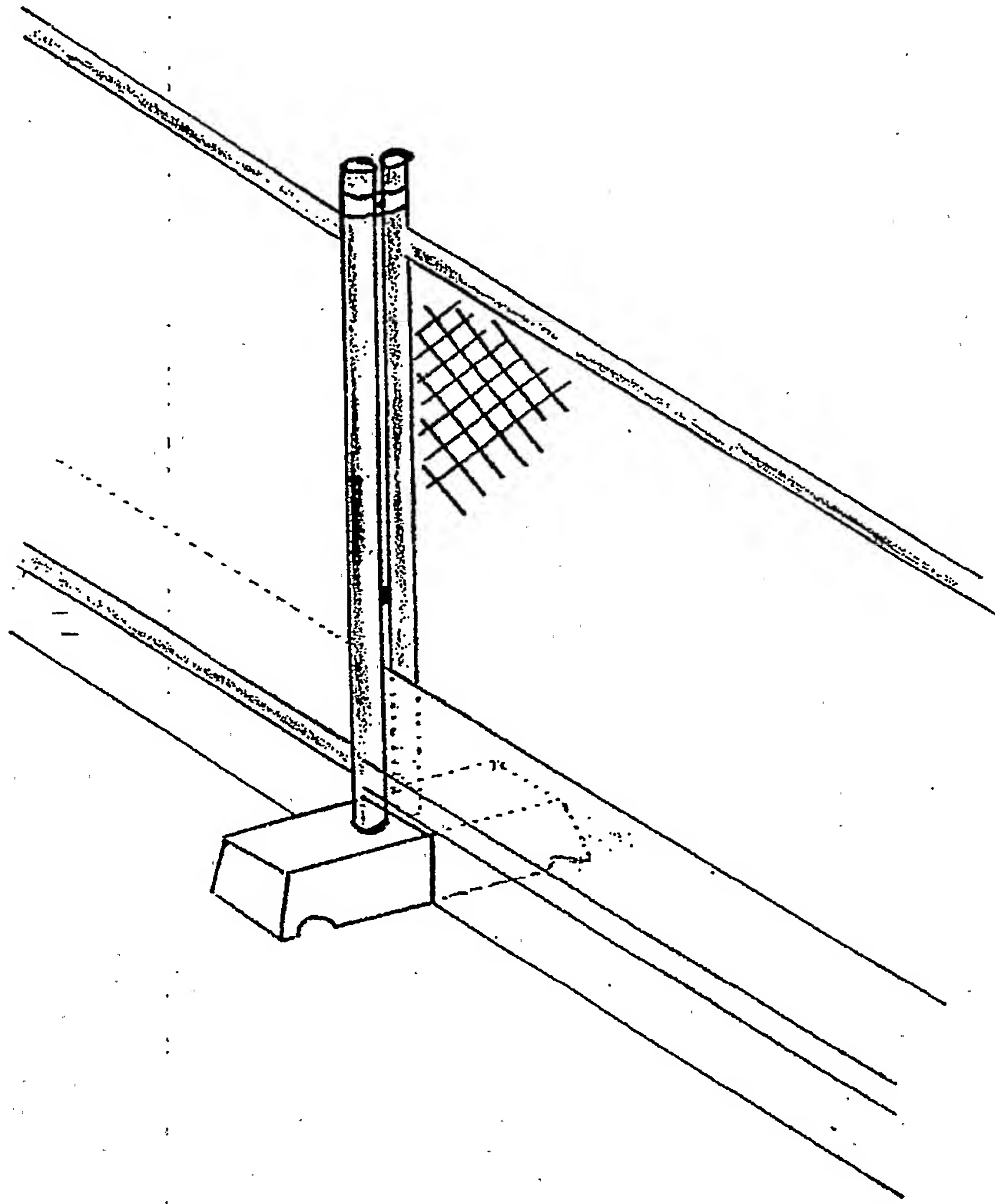
**FIG. 22**



**FIG. 23**



**FIG. 24**

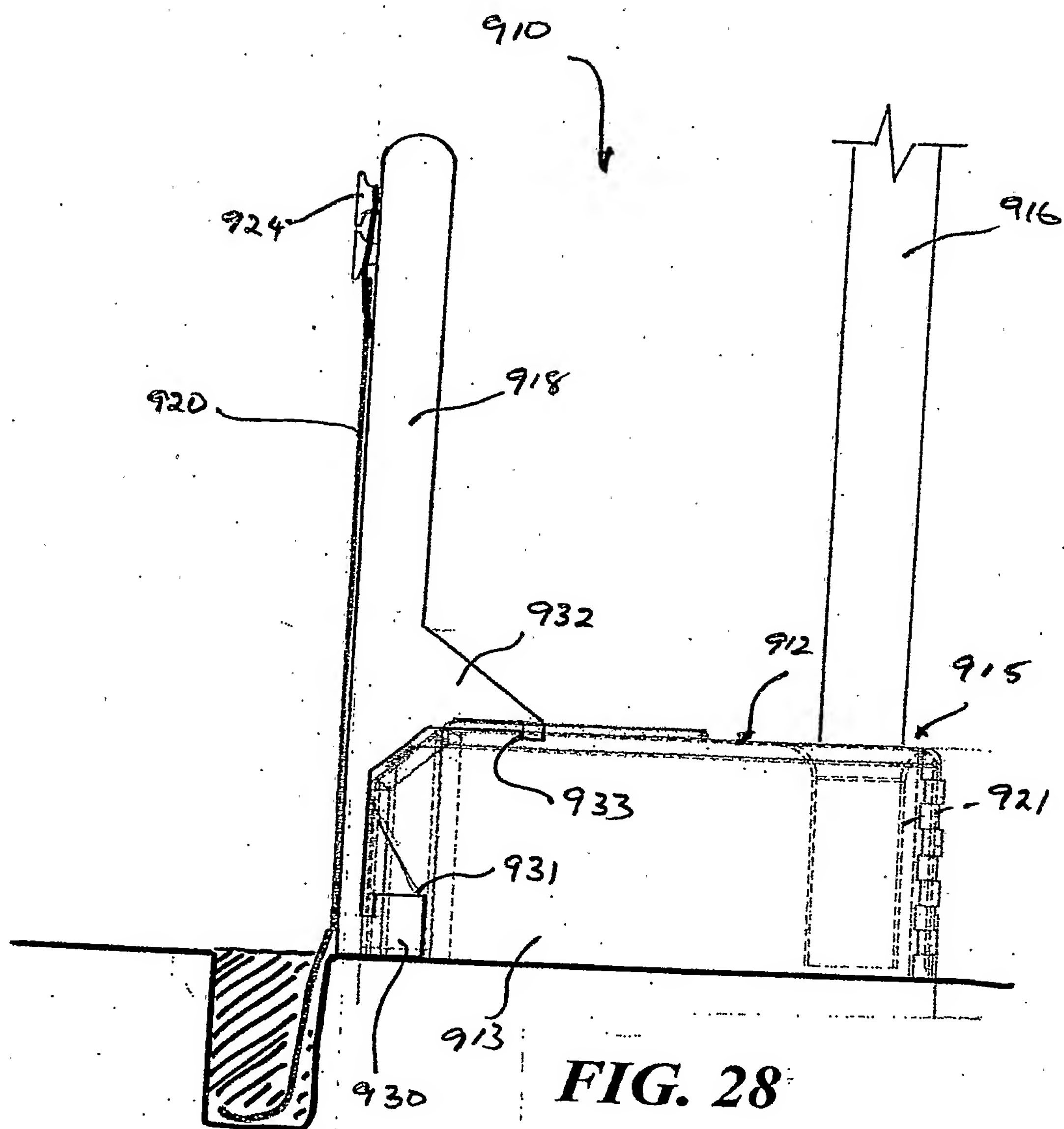


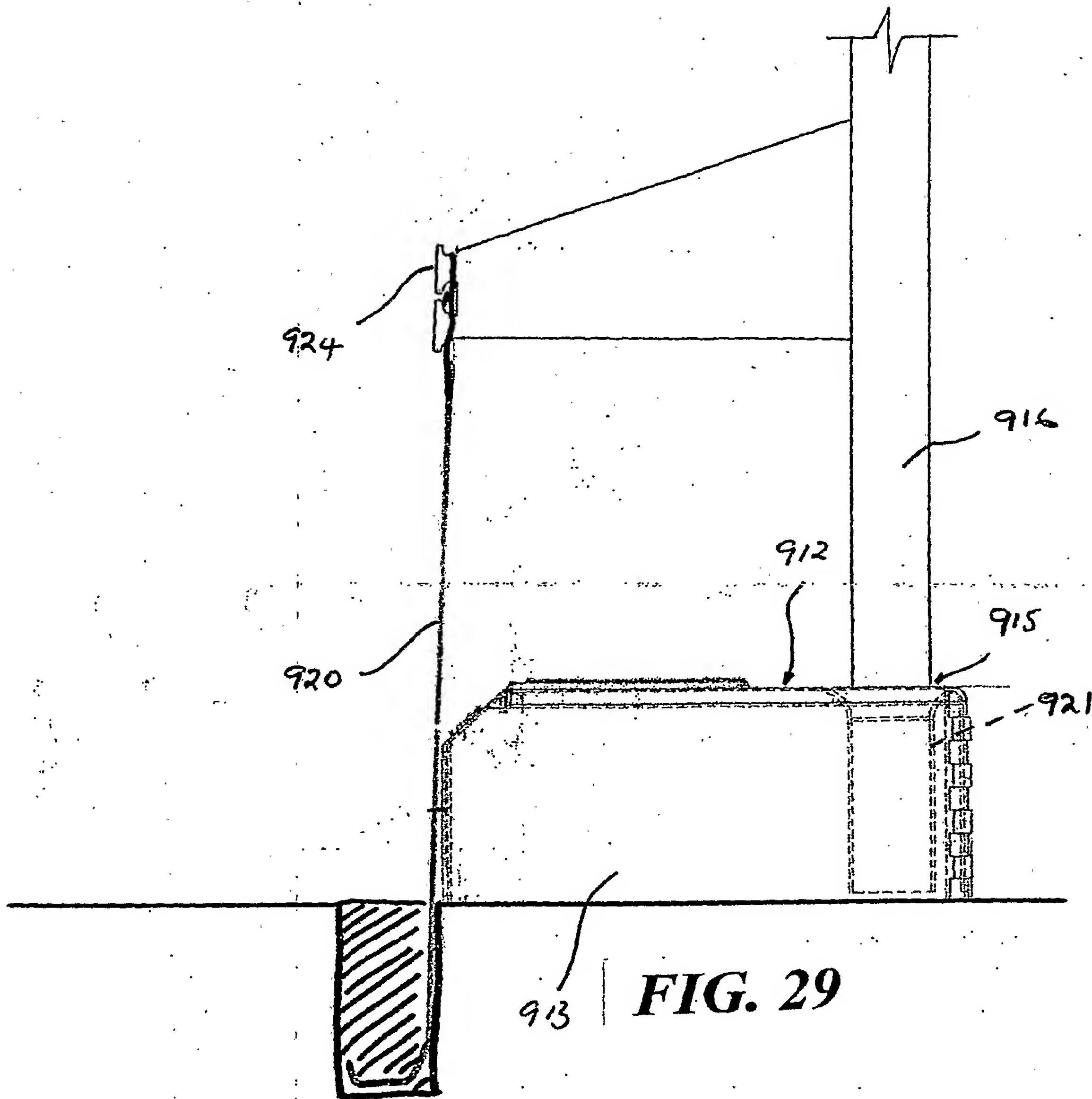
**FIG. 25**

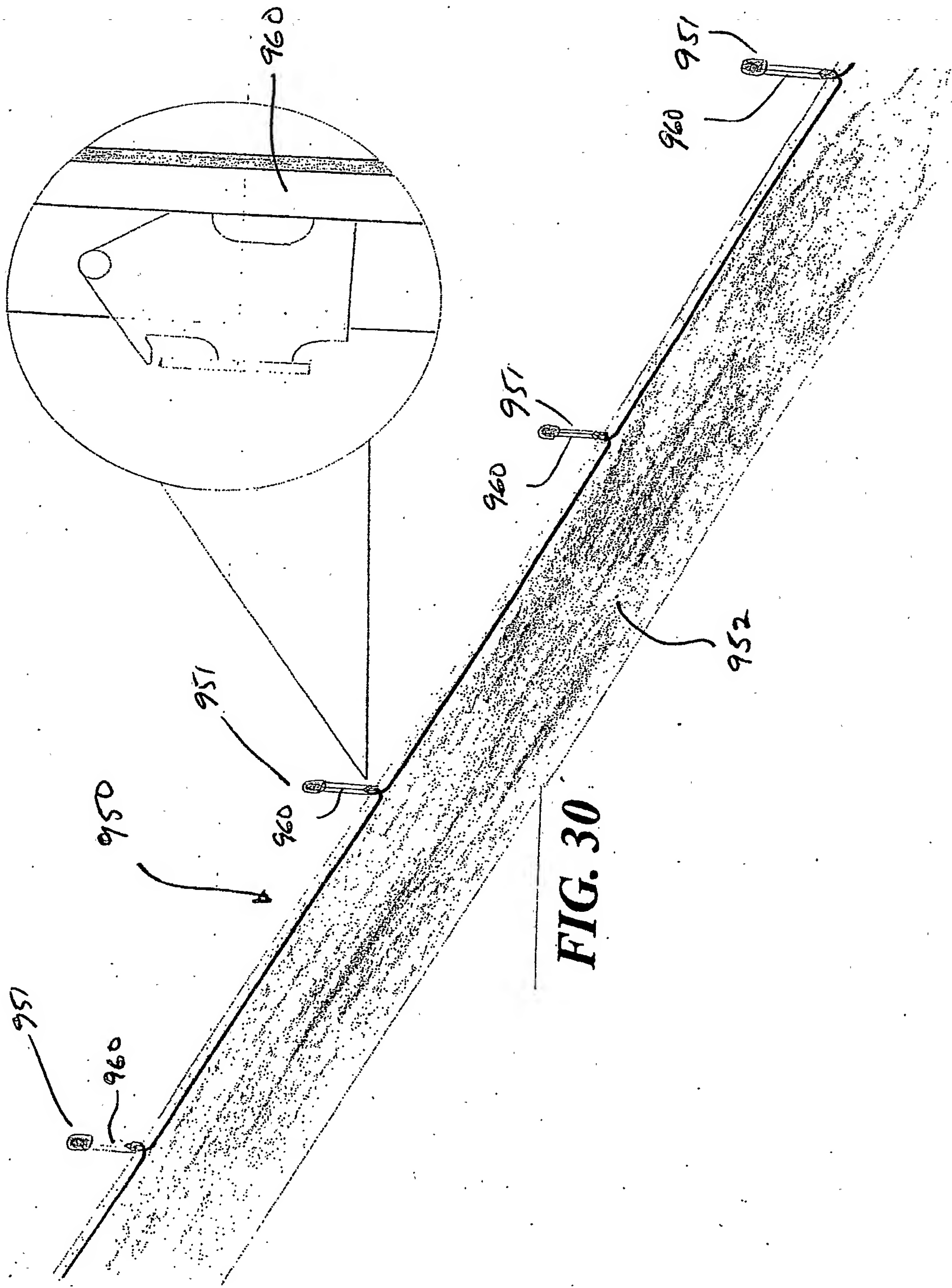












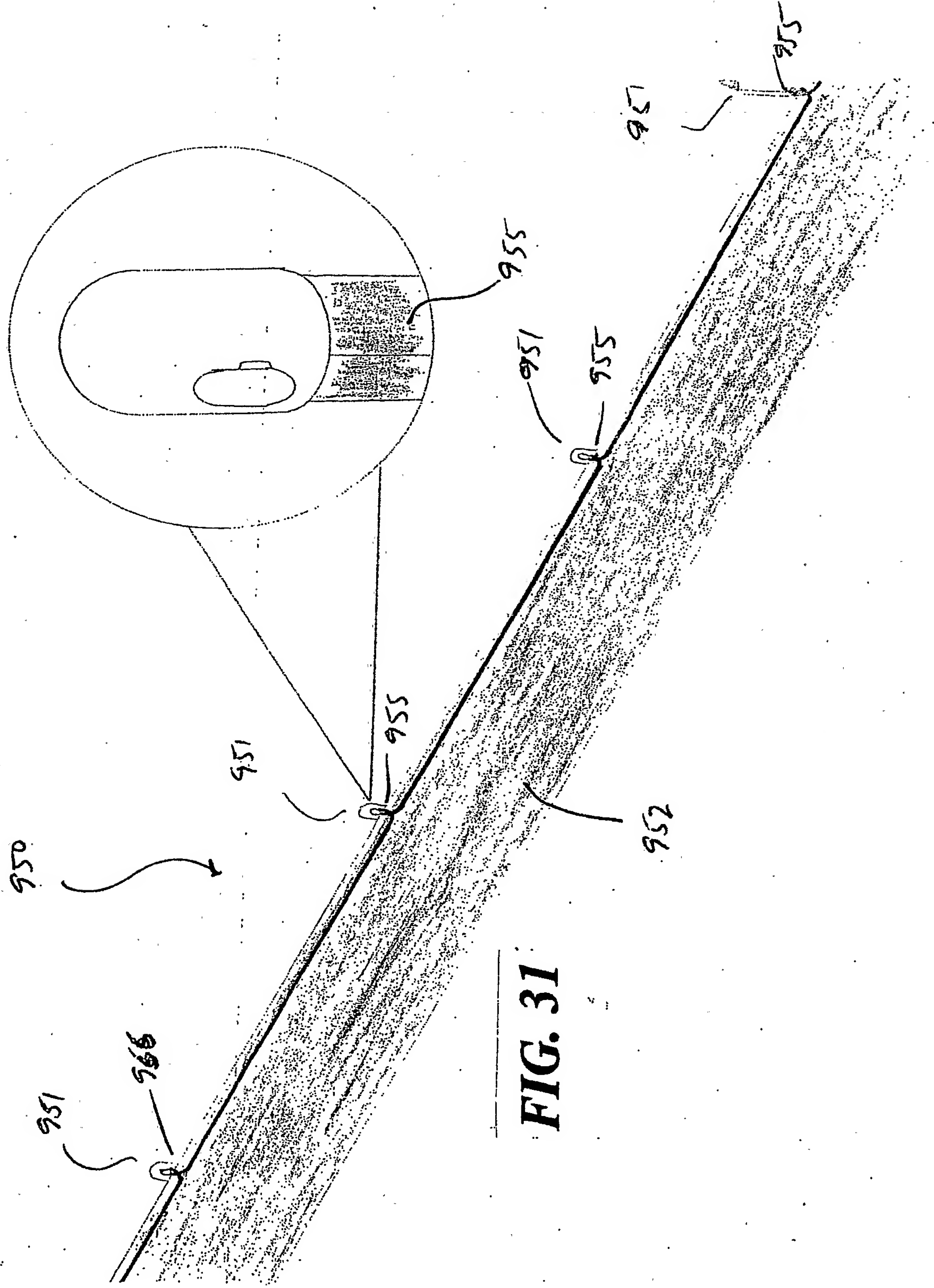
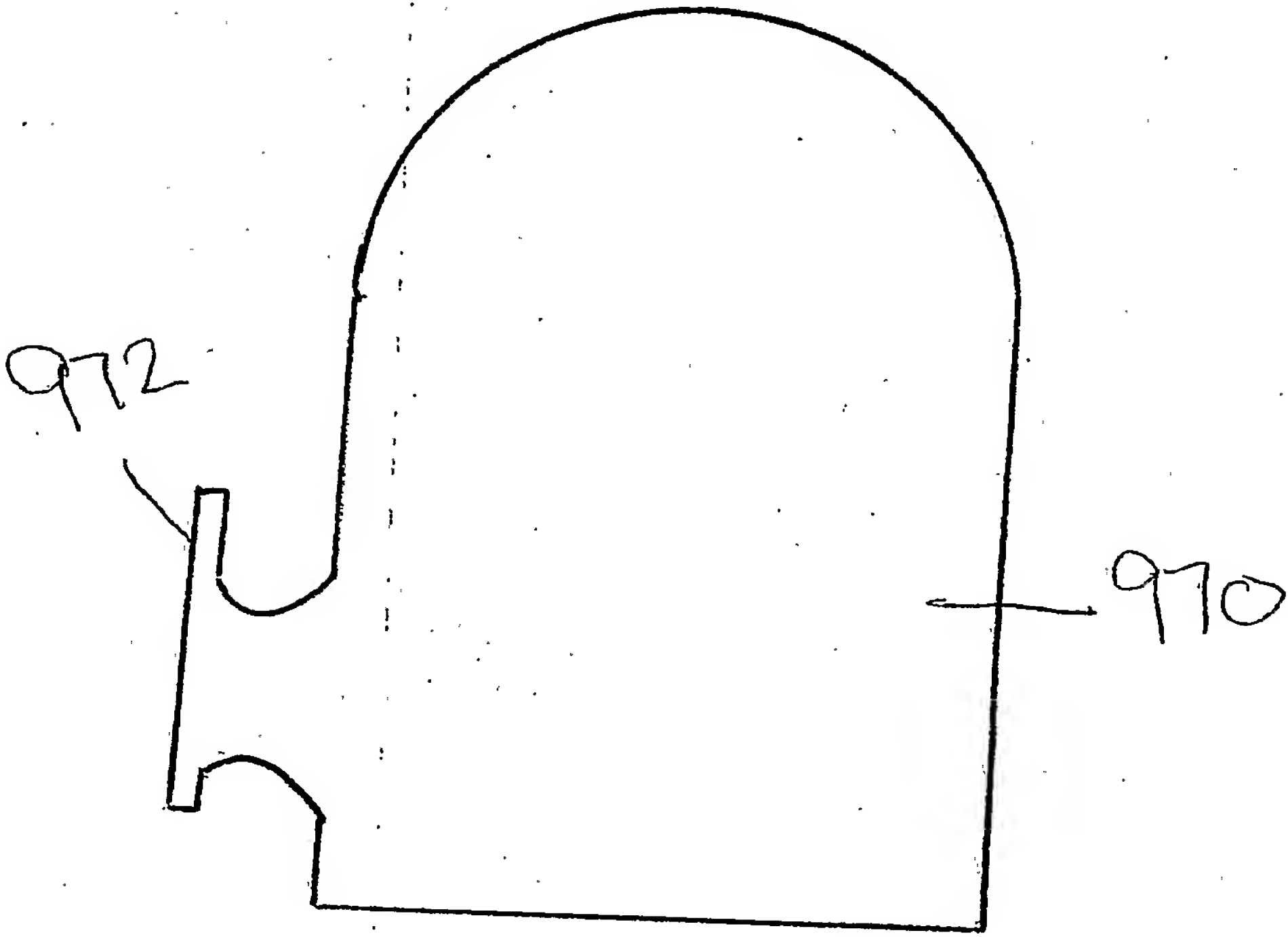


FIG. 31



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**FIG. 33**



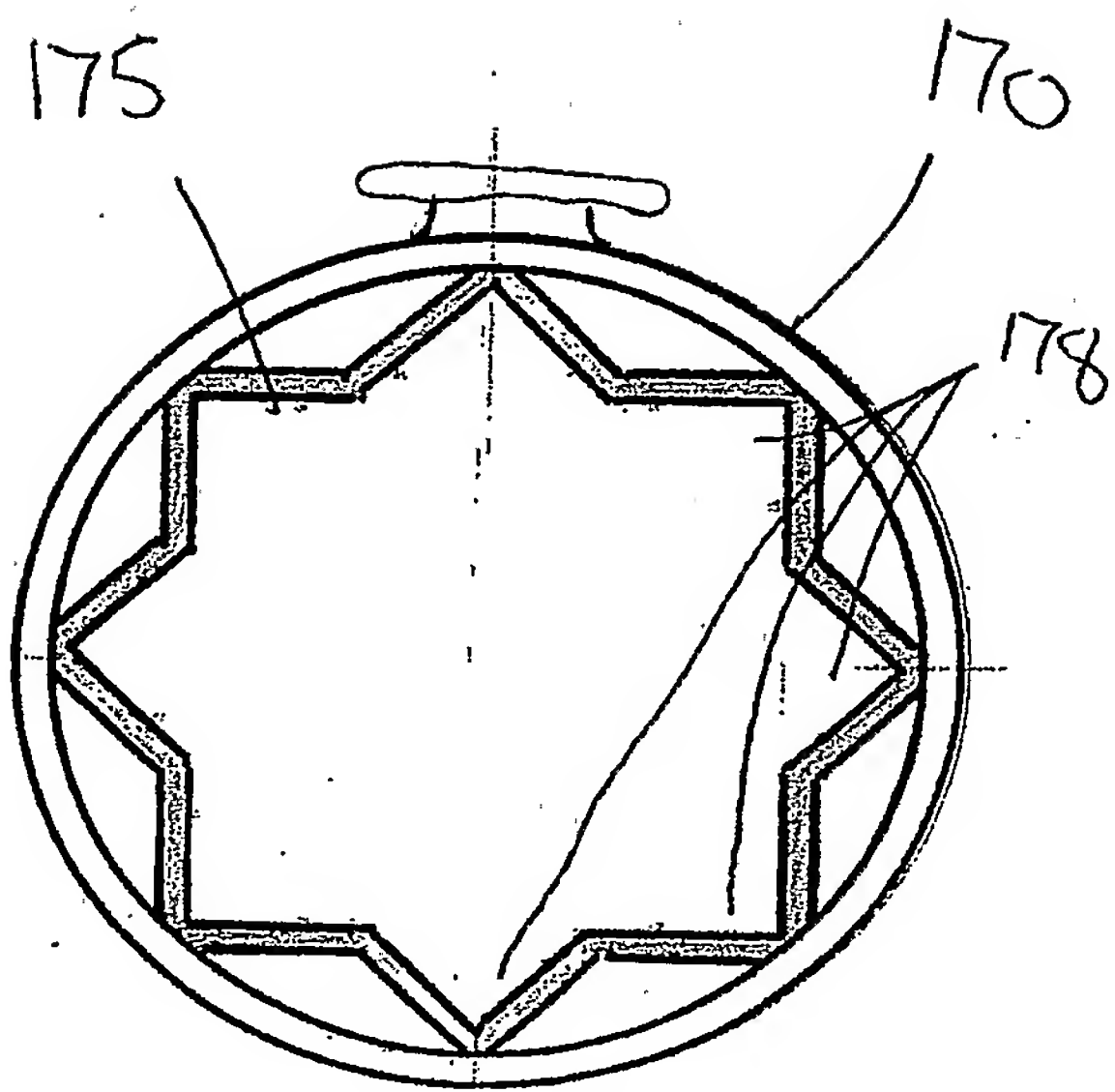


Fig. 35

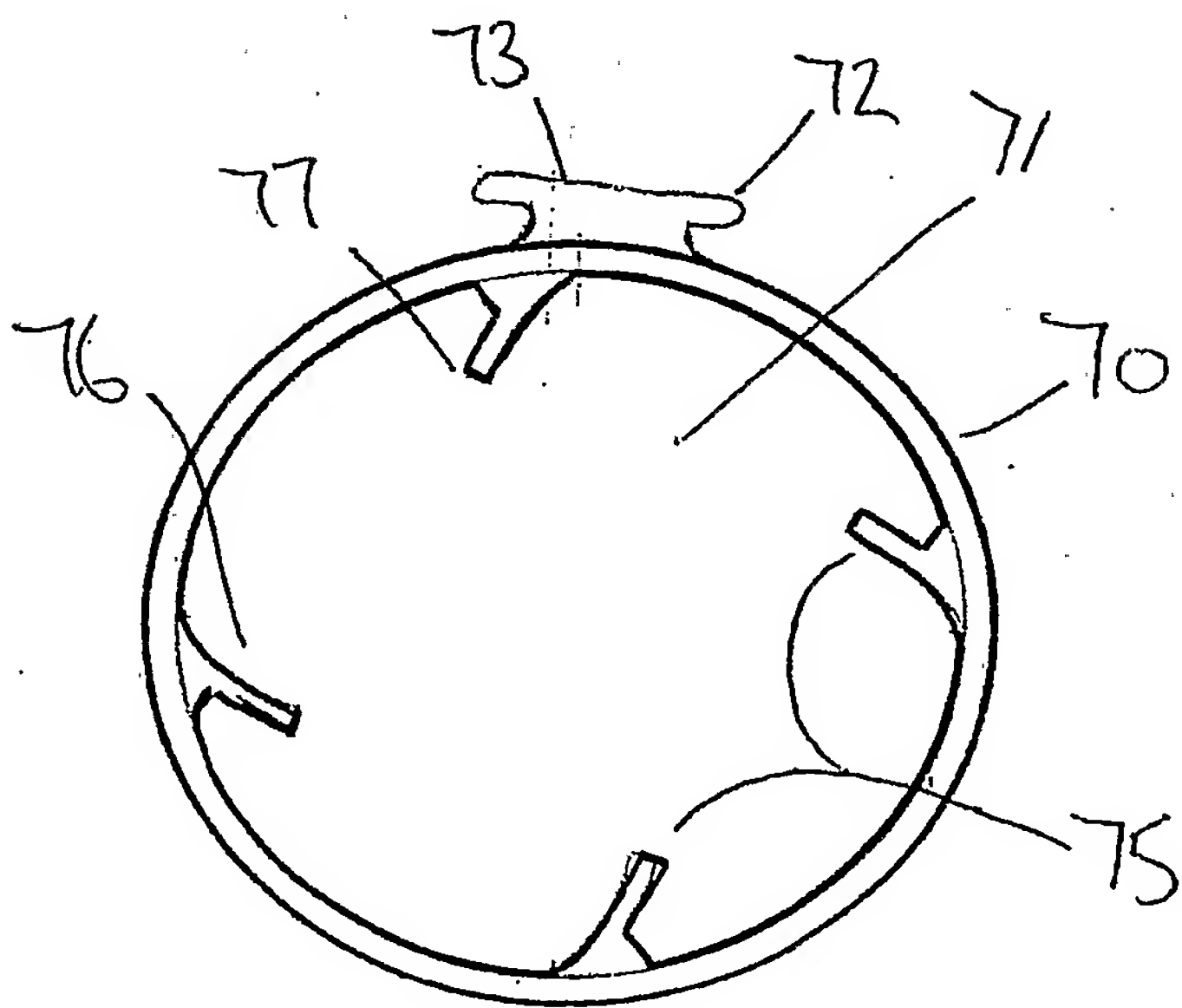


Fig. 34

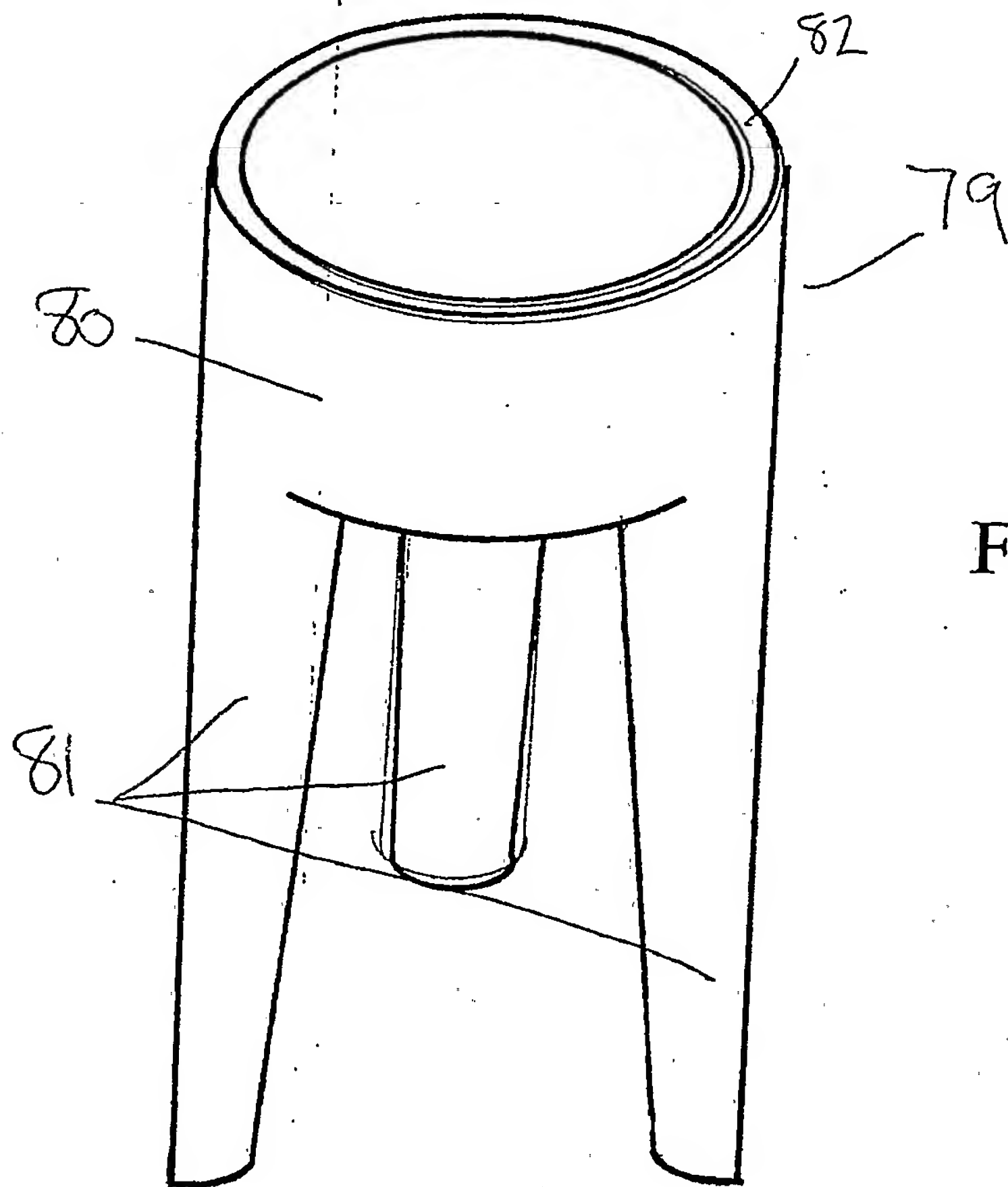


Fig. 36

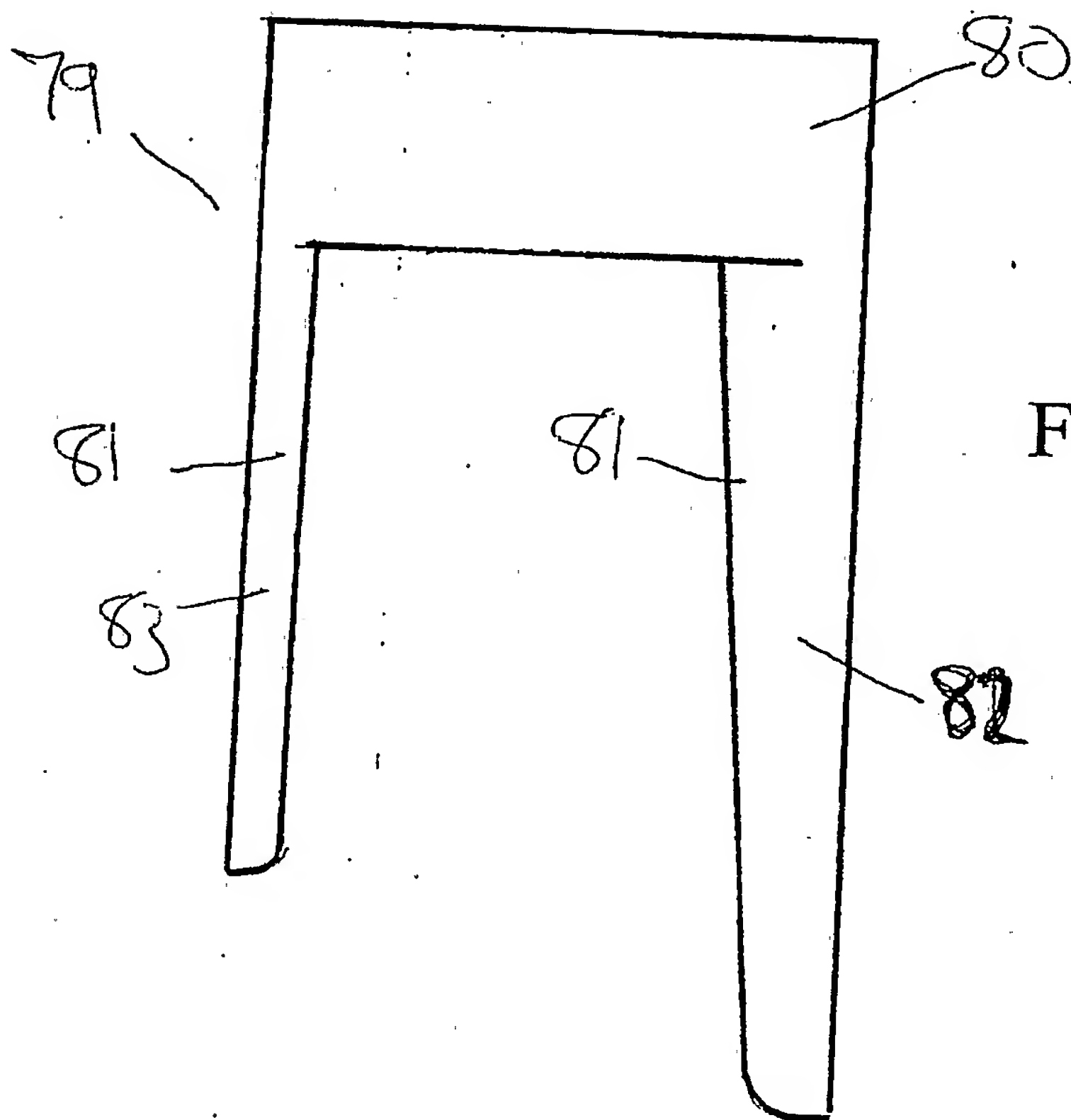
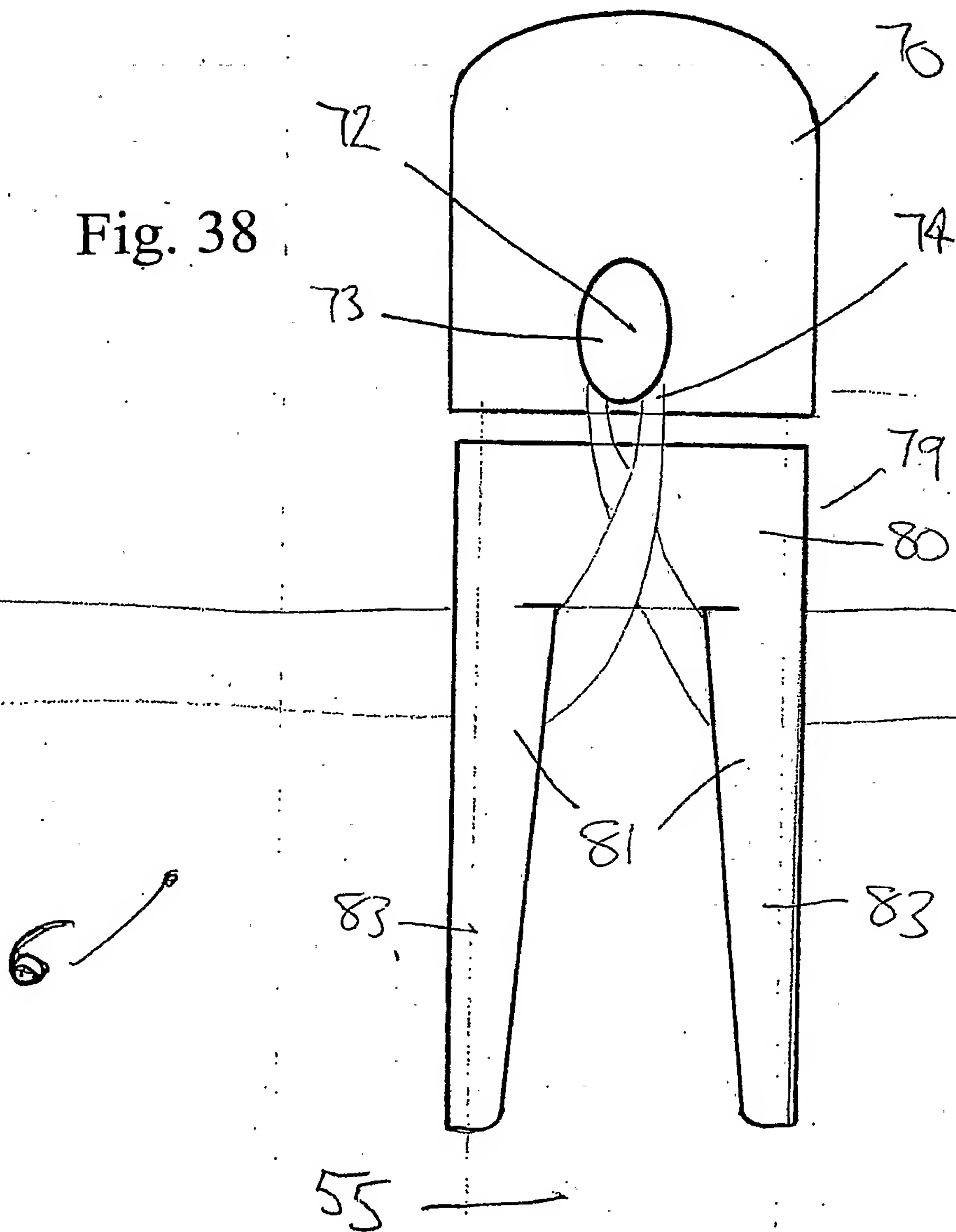


Fig. 37

Fig. 38



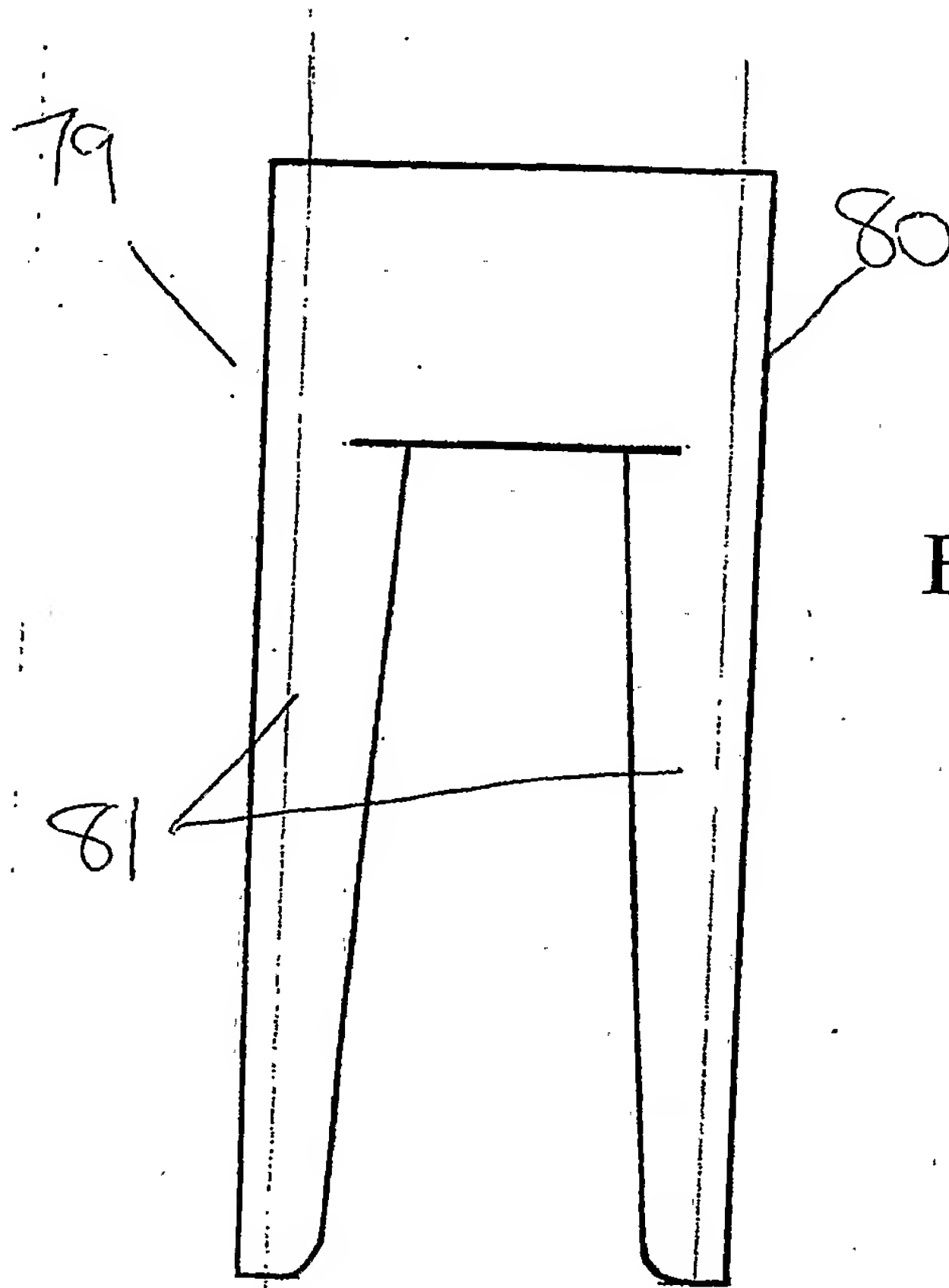


Fig. 39

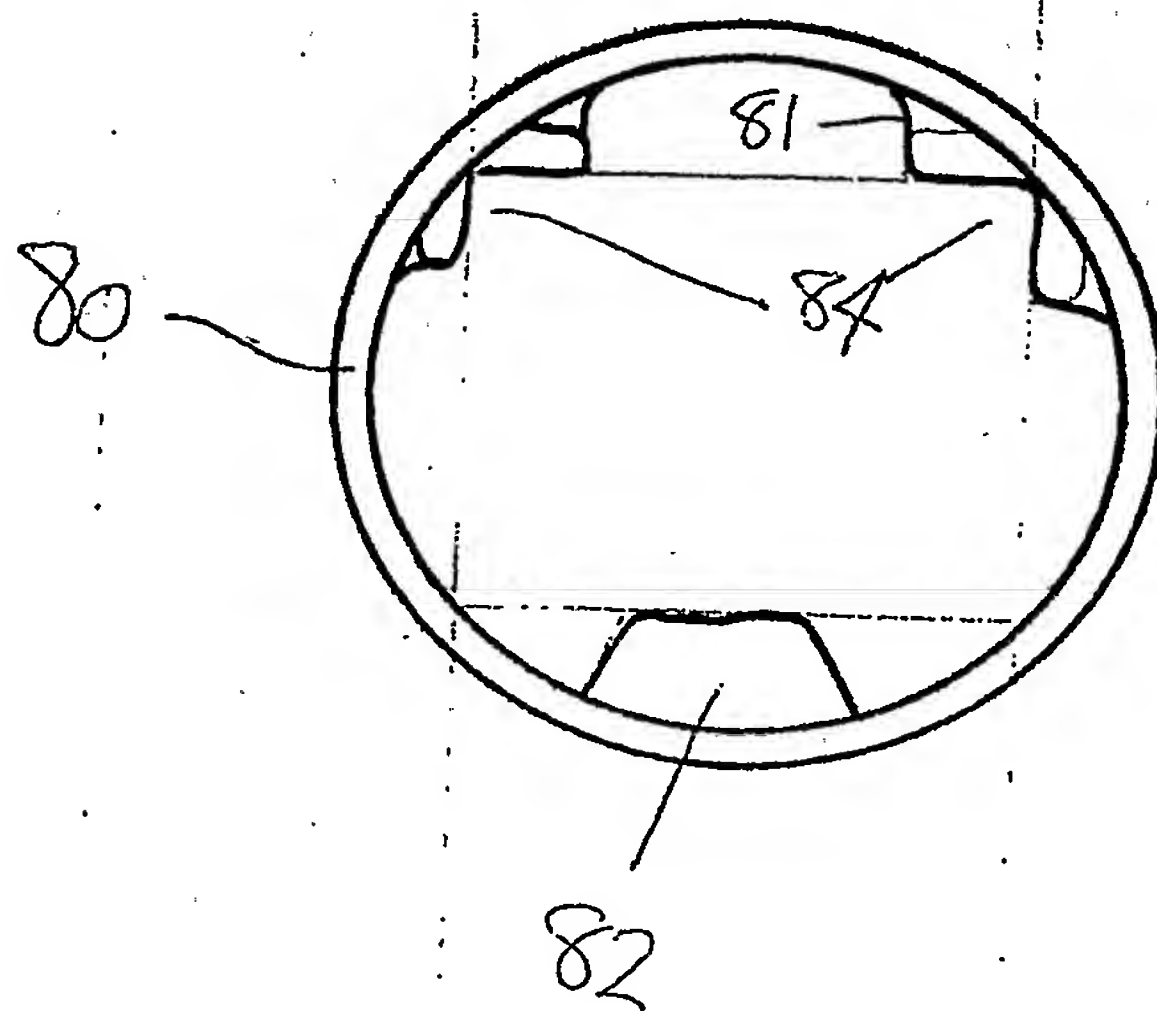


Fig. 40

